TECHNOLOGY DEPT.

February 19, 1941

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DETROIT

NATIONAL PETROLEUM NEWS

DEVELOP SPECIAL PARAFFINS TO COMPETE IN WAX MARKET

Paraffin waxes with unusual physical and chemical properties are being developed to open new markets and serve as substitutes for higher priced waxes. High melting point is a leading quality sought in new waxes. Page R-50

• • •

KEY TO RECYCLING EFFICIENCY IS RESIDUE GAS COMPOSITION

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• • •

KNOCK OF PURE HYDROCARBONS VARIES WIDELY, TESTS SHOW

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NEWS IN BRIEF

NEW CRACKING PROCESS IS ANNOUNCED BY JERSEY

New Jersey Standard announces its new "fluid catalytic" cracking process; California Standard to install Houdry unit at El Segundo; Ohio Standard builds alkylation plant at Toledo. Pages 7-8.

* * *

Recycling due to "level off" late in 1941, Tulsa engineer predicts. Page 16.

* * *

FTC seeking equal prosecution rights with Justice Department. Page 7.

* * *

Humble Refining Co. plans large recycling plant. Page 20.

Crude tighter in Southwest; buyers seek Gulf Coast oil. Page 7.

* * *

FTC dismisses Gulf from charge of disparaging reclaimed oil. Page 9.

* * *

Nebraska refinery to ship via water to expand marketing area. Page 9.

* * *

New federal specifications would raise octane for premium gasoline. Page 9.

* * *

Gulf Coast refiners seek relief from "exorbitant" tanker rates. Page 18.

REFINING TECHNOLOGY EDITION

ERIE
PRODUCTS ARE GOOD!

ERIE
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INC.
ERIE, PENNA.

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BOSTON, ATLANTA, RICHMOND, VIRGINIA, HOUSTON, DENVER, OAKLAND, CALIFORNIA

COMING MEETINGS

FEBRUARY

Liquefied Petroleum Gas Assn., Inc., Annual Convention, Chicago, Ill., Mon.-Tues., Feb. 24-25.

Connecticut Petroleum Industries Committee, annual convention, Bond Hotel, Hartford, Conn., Feb. 27.

Iowa Independent Oil Jobbers Assn., Des Moines, Ia., Wed.-Fri., Feb. 26-28.

American Petroleum Institute, Division of Production, Southwestern District, Washington-Youree Hotel, Shreveport, La., Thurs.-Fri., Feb. 27-28.

MARCH

North Texas Oil & Gas Assn., Wichita Falls, Tex., Sat., Mar. 1.

Ohio Petroleum Marketers Assn., Deshler-Wallick Hotel, Columbus, Ohio, Tues.-Thurs., March 4-6.

American Society for Testing Materials, Hotel Mayflower, Washington, D. C., Mon.-Fri., March 3-7.

Retail Petroleum and Automotive Assn., Seventh Annual Petroleum & Equipment Exposition & Convention, Los Angeles Elks Temple, Los Angeles, Calif., March 5-7.

National Dixie Distributors, Inc., Fort Worth, Tex., Mon., March 10.

American Petroleum Institute, Division of Production Spring Meeting, Pacific Coast District, Biltmore Hotel, Los Angeles, Calif., Tues., March 11.

Indiana Independent Petroleum Assn., 1941 Spring Convention & Refiners' & Suppliers' Exhibit, Hotel Severin, Indianapolis, Ind., Tues.-Thurs., March 11-13.

New Jersey Oil Trade Assn., Annual Spring Frolic & Induction of Officers, Robert Treat Hotel, Newark, N. J., Thurs., March 13.

Society of Automotive Engineers, National Aeronautic meeting, Washington Hotel, Washington, D. C., Mar. 12-14.

Oil Burner Institute, Progress Exhibition, Commercial Museum, Philadelphia, Pa., Mon.-Sat., March 17-22.

American Petroleum Institute, Mid-Continent District Production Division, Herring Hotel, Amarillo, Tex., Fri.-Sat., March 21-22.

Oil Trades Assn. of New York, Annual Meeting, Waldorf-Astoria, New York, Tues., March 25.

APRIL

Michigan Petroleum Assn., Annual Spring Convention, Detroit-Leland Hotel, Detroit, Mich., April 2 and 3.

American Assn. of Petroleum Geologists, 26th Annual Meeting, Rice Hotel, Houston, Tex., Wed.-Fri., April 2, 3 and 4.

American Chemical Society, St. Louis, Mo., Mon.-Fri., April 7-11.

Midwest Power Conference, Palmer House, Chicago, Wed.-Thurs., Apr. 9-10.

Western Petroleum Refiners Assn., Arlington Hotel, Hot Springs, Ark., Wed.-Thurs., April 16-18.

American Petroleum Institute, Division of Production, Wm. Penn Hotel, Pittsburgh, Pa., Thurs.-Fri., April 17-18.

Fuel Oil Distributors Assn., Asbury Park, N. J., Wed.-Fri., April 23-25.

Petroleum Industry Electrical Assn., Tulsa, Okla., Wed-Fri., April 23-25.

Natural Gasoline Assn. of America, Annual Convention, Baker Hotel, Dallas, Texas, Wed.-Fri., April 23-25.

National Petroleum Assn., semi-annual Meeting, Hotel Cleveland, Cleveland, O., Thurs.-Fri., April 24-25.

Petroleum and Natural Gas Conference, State College, Pa., Fri.-Sat., Apr. 25-26.

MAY

American Gas Assn., Natural Gas Section, Dallas, Tex., Mon.-Thurs., May 5-8.

Independent Oil Men's Assn. of New England, Annual Convention, Copley Plaza Hotel, Boston, Mass., Thurs., May 8.

Society of Automotive Engineers, Production Meeting, Schroeder Hotel, Milwaukee, Wis., May 12 and 13.

Virginian Petroleum Jobbers Assn., Spring Meeting, John Marshall Hotel, Richmond, Va., May 15.

Virginia Oil Men's Assn., annual spring meeting, John Marshall Hotel, Richmond, Va., Fri., May 16.

American Institute of Chemical Engineers, 33rd Semi-Annual Meeting, Edgewater Beach Hotel, Chicago, Ill., Mon.-Wed., May 19-21.

American Petroleum Institute, 11th Mid-Year Meeting, Mayo Hotel, Tulsa, Okla., Mon.-Fri., May 19-22.

National Assn. of Purchasing Agents, (Oil Company Buyers' Group) Stevens Hotel, Chicago, Mon.-Thurs., May 26-29.

National Oil Scouts & Land Men's Assn., Dallas, Tex., Thurs.-Sat., May 29-31.

JUNE

Illinois-Indiana Petroleum Assn., 9th Annual Petroleum Conference, Robinson, Ill., Sat., June 7.

Pennsylvania Grade Crude Oil Assn., Annual Meeting, Bradford, Pa., June 19-20.

American Society for Testing Materials, 44th Annual Meeting, Palmer House, Chicago, Ill., Mon.-Fri., June 23-27.

SEPTEMBER

American Chemical Society, Atlantic City, N. J., Mon.-Fri., Sept. 8-12.

National Petroleum Assn., Hotel Traymore, Atlantic City, N. J., Wed-Fri., Sept. 17-19.

National Lubricating Grease Institute, 9th Annual Meeting, Stevens Hotel, Chicago, Ill., Mon.-Tues., Sept. 29-30.

OCTOBER

Texas Mid-Continent Oil & Gas Assn., Beaumont, Tex., Tues.-Thurs., Oct. 9-11.

NATIONAL PETROLEUM NEWS

FEBRUARY 19, 1941

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THIS WEEK WITH NPN

NPN JOINS ARMY

Subscriber J. F. Martin, Irvington, N. Y., recently joined the Army. For a time, he had thought of leaving NPN behind him, but we're glad to report that he chose the better course and merely changed his address to the encampment of the 207th artillery in Georgia. Between gun practice and reading NPN, we suspect Private Martin's time will be profitably occupied. But he will keep up with news from all along the oil front.

GROUP SUBS

From time to time, many oil marketers become so enthusiastic about the help NPN gives them in their daily business, that they want every member of their personnel to receive it regularly. As a consequence, NPN receives letters asking for special rates for large group subscriptions. NPN is naturally proud that it is a right-hand man to many oil marketers, but regretfully points out that we do not give special rates. All NPN subscribers pay $3 per year, whether a single subscription or with several hundred others.

SAFETY MANUAL

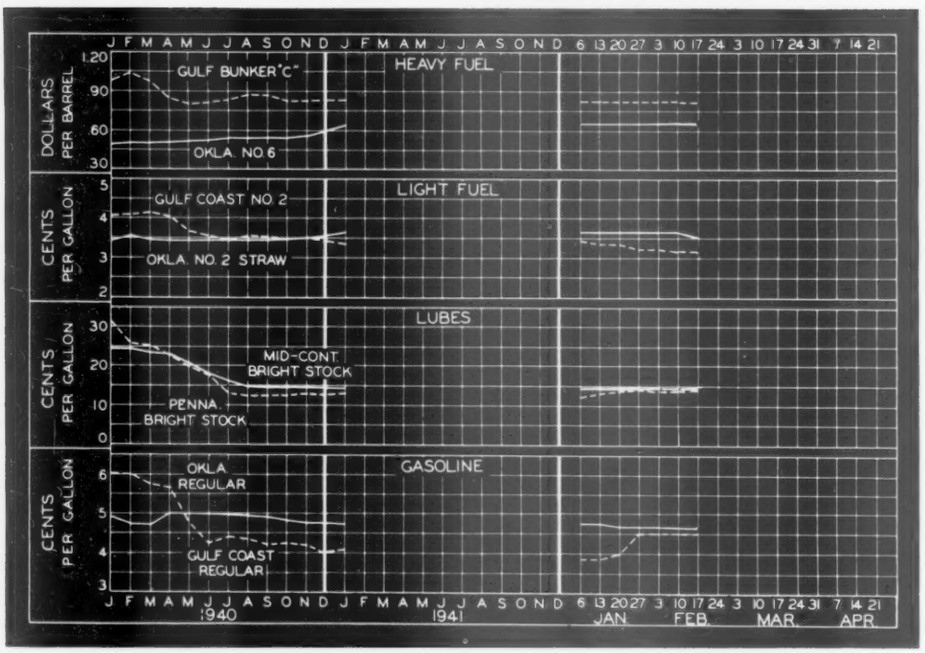
With this issue, on page 34, NPN starts a department devoted to safety in oil marketing which will run each week, space permitting. For this week and several subsequent issues, this new NPN department will carry excerpts from the "API Accident-Prevention Manual on Operation of Service Stations, Second Edition, 1941." This will be supplemented later with material assembled by NPN on good practice in the safe handling of petroleum products at bulk plants and stations. Single copies of the 29-page API station safety manual are priced at 25c each, with discounts on quantities — use coupon on page 36.

NEXT WEEK

Improved lighting pays dividends, is the theme of one of next week's stories which discusses mercury vapor and fluorescent lighting, comparing costs of each with incandescent lighting. Another article in our Feb. 26 number will tell about maintenance of service station equipment in order to meet extra demands being made on it at stations in or near towns where defense plants are "booming".

•STATISTICS•

REFINERY TANK CAR PRICES



N.P.N. Gasoline Index

	Dealer T.W. Cents	Tank Car Per Gallon
Feb. 17	8.63	5.12
Month ago	8.57	4.99
Year ago	9.64	5.94

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 9 wholesale markets for regular-grade gasoline.

Dealer & Service Station Gasoline Prices 50 Representative U. S. Cities As of February 1, 1941

(Reported in American Petroleum Industries Committee Tax Economic Bulletin)

	Dealer's Net Price (Ex. Tax)	Indicated Dealer Margin (Ex. Tax)	'Gas' Tax (Inc. 1.5c Federal Tax)	Service Station (Inc. Tax)
	(Cents Per Gallon)			
Portland, Me.	5.0	2.0	5.5	12.5
Manchester	6.6	2.9	5.5	15.0
Burlington, Vt.	6.5	2.5	5.5	14.5
Boston	6.2	2.8	4.5	13.5
Providence	7.2	3.3	4.5	15.0
Hartford	7.0	3.0	4.5	14.5
Buffalo	8.0	3.0	5.5	16.5
New York	7.2	2.3	5.5	15.0
Newark	7.0	3.4	4.5	14.9
Philadelphia	7.5	2.9	5.5	15.9
Dover, Del.	8.0	2.0	5.5	15.5
Baltimore	7.75	4.05	5.5	17.30
Washington	7.5	3.0	3.5	14.0
Charleston, W. Va.	9.55	4.05	6.5	20.1
Norfolk, Va.	8.75	4.55	6.5	19.8
Charlotte, N. C.	7.5	3.0	7.5	18.0
Charleston, S. C.	8.75	4.25	7.5	20.5
Atlanta	7.5	4.0	7.5	19.0
Jacksonville	7.5	3.0	8.5	19.0
Birmingham	8.0	4.5	8.5*	21.0
Vicksburg	8.0	5.0	7.5	20.5
Memphis	9.0	4.8	8.5	22.3
Lexington	9.0	3.5	6.5	19.0
Youngstown, O.	8.0	3.0	5.5	16.5
South Bend	9.8	4.7	5.5	20.0
Chicago	8.1	2.57	4.5	15.17
Detroit	8.1	3.25	4.5	15.85
Milwaukee	9.8	4.1	5.5	19.4
St. Paul-Minneapolis	9.7	4.0	4.5	18.2
Fargo, N. D.	11.2	3.5	5.5	20.2
Huron, S. D.	10.5	4.0	5.5	20.0
Omaha	9.4	3.5	6.5	19.4
Des Moines	9.4	4.0	4.5	17.9
St. Louis	8.7	3.2	4.5*	16.4
Wichita	7.8	3.5	4.5	15.8
Tulsa	7.0	2.5	5.5	15.0
Little Rock	8.0	4.0	8.0	20.0
New Orleans	7.75	4.25	8.5	20.5
Houston	7.0	4.0	5.5	16.5
Albuquerque	9.0	4.5	7.0**	20.5
Denver	9.0	4.0	5.5	18.5
Casper, Wyo.	11.0	5.0	5.5	21.5
Butte, Mont.	9.0	4.0	6.5	19.5
Boise, Idaho	12.0	4.0	6.6	22.6
Salt Lake City	10.5	4.5	5.5	20.5
Reno, Nev.	11.0	4.0	5.5	20.5
Phoenix, Ariz.	11.0	4.0	6.5	21.5
San Francisco	9.0	4.0	4.5	17.5
Portland	9.5	4.0	6.5	20.0
Spokane	11.0	4.0	6.5	21.5
Average 50 Cities	8.54	3.64	5.9	18.08

*Includes 1c City Tax. **Includes 0.5c City Tax.

Crude Oil Stocks

(U. S. Bureau of Mines figures, thousands of barrels)

Grade or origin	Feb. 1	Feb. 8	Change from Feb. 1
Pennsylvania Grade	4,327*	4,298	— 29
Other Appalachian	1,226	1,251	+ 25
Lima-Michigan	1,244	1,227	— 17
Illinois-Indiana	20,511	20,699	+ 188
Arkansas	3,448	3,352	— 96
Kansas	8,885	8,811	— 74
Louisiana:	12,993	12,323	— 670
Northern	4,423	4,466	+ 43
Gulf Coast	8,570	7,857	— 713
Mississippi	1,047	1,045	— 2
New Mexico	6,978	7,004	+ 26
Oklahoma	64,286	64,460	+ 174
Texas:	82,770	81,834	— 936
East Texas	18,912	18,379	— 533
West Texas	16,900	16,814	— 86
Gulf Coast	20,577	20,963	+ 386
Other Texas	26,381	25,678	— 703
Rocky Mountain	14,771	15,080	+ 309
California	35,943	36,159	+ 216
Foreign	2,841	2,707	— 134
Total United States refinable	261,270*	260,250	—1,020
Heavy in California	12,084	12,147	+ 63

*Revised.

G.C.R.A. Stocks Report

(Compiled by Gulf Coast Refiners Assn. from reports of member companies covering 8 refineries. Figures in barrels.)

	Feb. 1, 1941	Jan. 15, 1941
Gasoline Stocks, Total (Includes Aviation, Motor fuel & Naphtha)	1,944,148	1,946,476
Aviation Gasoline	473,604	422,996
Motor Fuel	1,415,580	1,468,141
Naphtha	54,964	55,339
Kerosine	276,930	233,351
Diesel Gas Oil	592,007	576,994
Diesel Fuel	198,195	177,912
Gas Oils, other types	610,489	659,271
No. 5 Fuel Oil	None	35,829
Bunker "C" Fuel Oil	288,325	510,861
Crude Runs (daily average)	58,734	57,703

Automobile Statistics

(Statistics on factory sales, compiled by U. S. Bureau of Census)

NUMBER OF VEHICLES (Including Chassis)

UNITED STATES (Factory Sales)

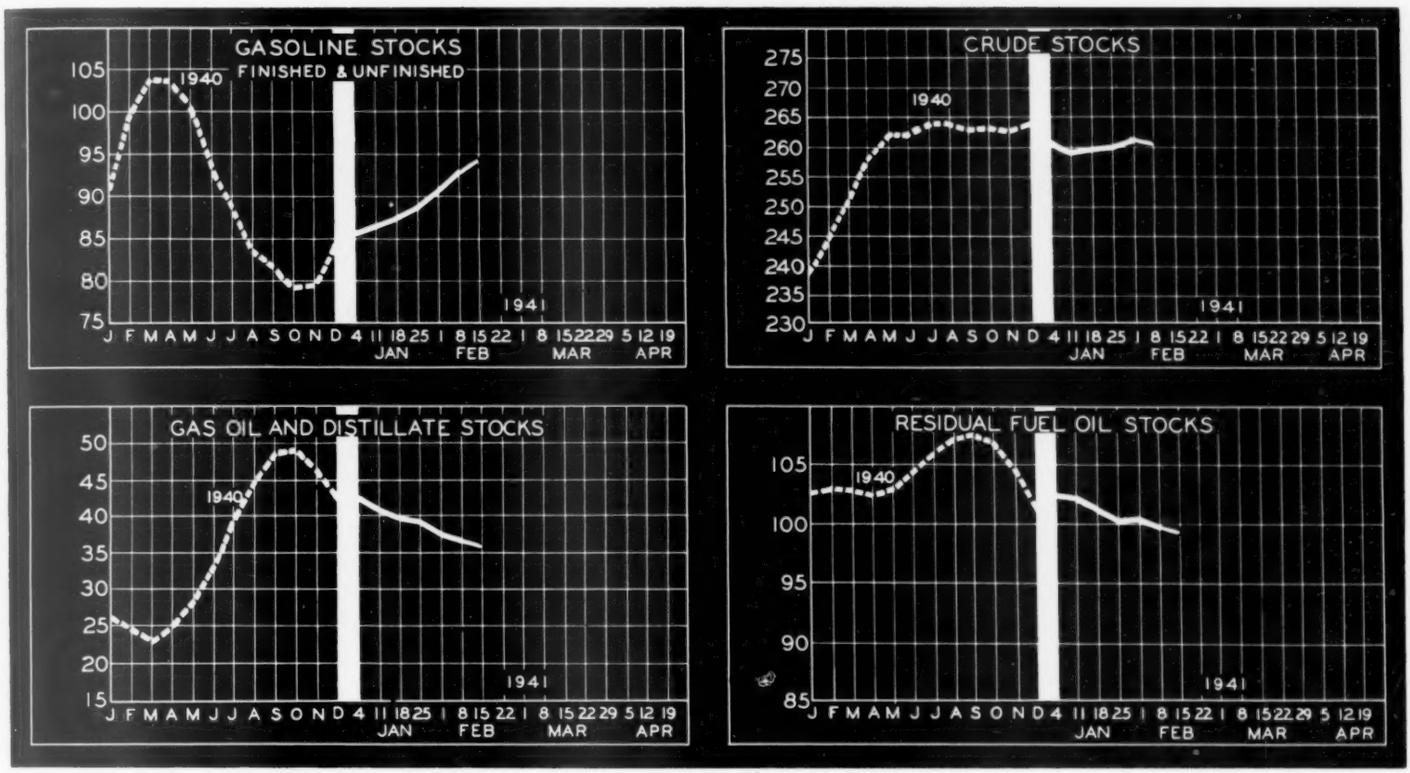
Year and month 1940	Total (all vehicles)	Passenger cars Total	Passenger cars Domestic market	Passenger cars Foreign markets	Commercial cars, trucks, and road tractors Total	Commercial cars, trucks, and road tractors Domestic market	Commercial cars, trucks, and road tractors Foreign markets
January	432,279	362,897	348,755	14,142	69,382	55,046	14,336
February	404,032	337,756	324,555	13,201	66,276	53,960	12,316
March	423,620	352,922	341,634	11,288	70,698	58,650	12,048
April	432,746	362,139	351,814	10,325	70,607	61,452	9,155
May	391,215	325,676	315,441	10,235	65,539	56,340	9,199
June	344,636	286,040	276,949	9,091	58,596	49,505	9,091
July	231,703	168,769	165,672	3,097	62,934	53,074	9,860
August	75,873	46,823	45,172	1,651	29,050	26,778	2,272
September	269,108	224,470	220,696	3,774	44,638	39,487	5,151
October	493,223	421,214	411,016	10,198	72,009	59,639	12,370
November	487,352	407,091	395,860	11,231	80,261	68,223	12,038
December	483,567	396,531	386,729	9,802	87,036	73,484	13,552
Total (1940)	4,469,354	3,692,328	3,584,293	108,035	777,026	655,638	121,388
Total (1939)	3,577,292	2,866,796	2,702,181	164,615	710,496	558,973	151,523
Total (1938)	2,489,085	2,000,985	1,810,938	190,047	488,100	332,207	135,893

CANADA (Production)

Total	Passenger cars	Commercial cars and trucks
17,213	12,579	4,634
18,193	12,779	5,414
16,612	12,025	4,587
19,687	13,487	6,200
21,277	12,677	8,600
17,930	8,739	9,191
14,468	3,397	11,071
13,993	1,510	12,483
15,475	3,410	12,065
21,151	7,056	14,095
23,621	10,814	12,807
23,364	11,653	11,711
222,984	110,126	112,858
155,426	108,369	47,057
166,086	123,761	42,325

•STATISTICS•

(Figures in graphs below are in millions of barrels)



A.P.I. Report of Refinery Operations

(Figures in Thousands of Barrels of 42 Gallons Each)

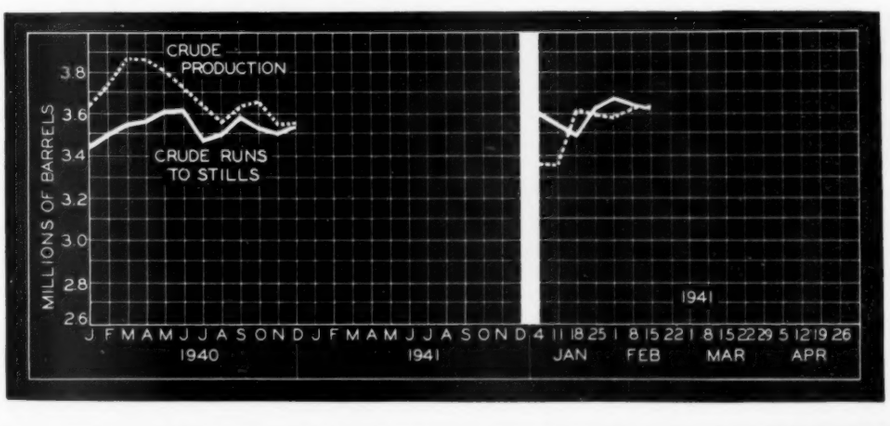
Districts	Daily Average Crude Runs to Stills Week Ended		Per Cent of Reporting Capacity Operated Week Ended		Gasoline Production at Refineries incl. Natural Blended Week Ended		Total Stocks Finished & Unfinished Gasoline Week Ended		Total Stocks Gas Oil & Distillates Week Ended		Total Stocks Residual Fuel Oil Week Ended		Stocks Aviation Gasoline Included in Finished & Unfinished Gasoline Total Week Ended	
	Feb. 15	Feb. 8	Feb. 15	Feb. 8	Feb. 15	Feb. 8	Feb. 15	Feb. 8	Feb. 15	Feb. 8	Feb. 15	Feb. 8	Feb. 15	Feb. 8
East Coast	562	567	87.4	88.2	1,506	1,478	20,239	19,683	12,647	13,197	9,120	9,756		
Appalachian	128	124	90.1	87.3	428	475	3,308	3,278	418	422	475	454	**East Coast**	
Ind., Ill., Ky.	584	582	87.2	86.9	2,216	2,182	18,037	17,633	3,290	3,478	3,138	3,020	786	745
Okla., Kans., Mo.	268	267	83.0	82.7	*930	*951	8,315	8,148	1,329	1,253	1,969	2,008	**Interior**	
Inland Texas	144	133	86.2	79.6	655	621	2,177	2,155	384	388	1,494	1,499	781	758
Texas Gulf	903	884	94.6	92.6	2,843	2,644	14,003	14,019	5,927	6,165	7,183	7,262		
La. Gulf	117	126	73.1	78.8	373	333	3,223	3,071	969	1,013	2,132	2,041	**Gulf Coast**	
N. La., Ark.	47	48	90.4	92.3	141	155	549	553	303	310	514	520	2,882	3,070
Rocky Mt.	50	57	73.5	83.8	203	220	1,514	1,485	166	161	455	443	**California**	
California	485	510	66.4	69.9	1,414	1,494	16,606	16,570	9,715	9,697	71,250	71,213	1,503	1,607
Reported	3,288	3,298	84.1	84.3	10,709	10,553	87,971	86,595	35,148	36,084	97,730	98,216	5,952	6,180
Estimated Unreported	342	342			1,460	1,440	6,770	6,670	610	625	1,695	1,705	230	235
U. S. Total†	3,630	3,640			12,169	11,993	94,741	93,265	35,758	36,709	99,425	99,921	6,182	6,415
U. S. Total 2-15-40†	3,509				11,165		95,135		25,551		102,929		3,906	

*12% of reporting capacity in this district did not report gasoline production. †Estimated, U. S. Bureau of Mines basis.

U. S. Crude Oil Production

(American Petroleum Institute figures)

	—WEEK ENDED— Feb. 15 Barrels (Daily Average)	Feb. 8 Barrels (Daily Average)
Oklahoma	407,450	422,450
Kansas	203,100	117,500
Nebraska	3,600	2,800
Texas	1,337,750	1,341,900
Louisiana	295,950	294,200
Arkansas	70,150	70,000
Mississippi	17,900	19,950
Illinois	326,200	324,250
Indiana	19,000	21,500
Eastern (Ill. & Ind. excluded)	91,950	87,650
Michigan	39,850	39,500
Wyoming	72,800	73,100
Montana	18,900	18,850
Colorado	3,600	3,650
New Mexico	100,700	100,650
California	629,200	619,700
Total U. S.	3,638,100	3,617,650
Crude Imports	84,715	119,715
Total New Supply	3,722,815	3,737,365


CRUDE PRODUCTION
CRUDE RUNS TO STILLS
MILLIONS OF BARRELS
3.8
3.6
3.4
3.2
3.0
2.8
2.6
J F M A M J J A S O N D J F M A M J J A S O N D 4 11 18 25 1 8 15 22 1 8 15 22 29 5 12 19 26
1940
1941
JAN FEB MAR APR

Detroit Oil Men's Club Starts Second Year

Glenn E. Keister

● Leading the Detroit Oil Men's Club in a second year of "pleasure, social recreation, charity and the promotion of good fellowship," are three new and recently-elected officers:

Glenn E. Keister, Michigan sales manager, Shell Oil Co., president; George McWood, sales manager, Victor Oil Co., vice-president; and P. F. Edwards, representative, Fuel Oil Corp., treasurer. Secretary Elmer E. Ledbetter, Wayne Oil Co., was re-elected secretary.

Board members, in addition to officers named above, are: Wray B. Bailey, treasurer of Wilson Oil Co.; Carl F. Battenfeld, president of C. F. Battenfeld Oil Co.; Jacob A. Citrin, president of Citrin-Kolb Oil Co.; Earl W. Hope, president of Petroleum Service, Inc.; and Howard J. MacGready, general representative of Aurora Gasoline Co.

Following election of officers, Mr. McWood presented the retiring president, Earl W. Hope, with a desk set as a token of appreciation for Mr. Hope's work in organizing Detroit oil men.

With club memberhip restricted to those interested in wholesale marketing of petroleum products and associates in allied industries, enrollment at the end of 1940 totaled 100, with 26 candidates about to be admitted and a membership of around 200 expected by the end of 1941. On Nov. 29 of this year, the club will celebrate its second birthday.

Elmer E. Ledbetter | George McWood | P. F. Edwards

NATIONAL PETROLEUM NEWS

VOLUME 33 WEDNESDAY, FEBRUARY 19, 1941 NUMBER 8

Crude Tighter, Buyers Seeking Gulf Coast Oil

N. P. N. News Bureau

TULSA, Feb. 17.—Producers of crude oil in the Southwest, like the school boy in the class room, are anxiously watching for the first signs of spring and day dreaming about what warm weather will bring.

Producers have attached little significance this year to the ground-hog-and-his shadow superstition because the U. S. Bureau of Mines has already predicted a 8 or 9% increase in demand for petroleum products would, beginning sometime in March, come from increased industrial and national defense activities. Increased demand for petroleum products, they believe, will be reflected to a lesser degree in demand for their crude.

Already, several harbingers of spring have made their appearance in the Southwest, confirming economists' judgment that the oil situation in this area has tightened perceptibly since the turn of the year.

Weiss Speaks to Stockholders

Speaking about this, H. C. Weiss, president of Humble Oil & Refining Co. reported to his stockholders as follows:

"Conditions in Texas reached a very unsatisfactory state by last November, at which time we addressed a letter to those from whom we purchase oil calling their attention to the dangers involved in trends then prevailing. Since that time, there has been some improvement, and it is hoped that the trend will continue in this direction."

While southwestern crude supply sources have already absorbed a portion of Illinois' crude oil markets lost through natural declines in output in that state, developments within the past few weeks indicate further placement of Illinois' former markets in the Mid-Continent. Statement by Humble's president said, "Illinois production will apparently be lower in 1941 by more than 100,000 bbls. daily."

The return to the Mid-Continent of its prodigal markets,

(*Continued on page* 17)

FTC Asks Oil Probe Seeks Wider Powers

N. P. N. News Bureau

WASHINGTON, Feb. 17. — Federal Trade Commission investigation of oil industry with a view to establishment by Congress of "a definite national policy dealing with the production and distribution of oil and petroleum products in the light of national security and national defense," has been proposed to Temporary National Economic (Monopoly) Committee, by FTC Chief Examiner James Horton during presentation of Trade Commission recommendations.

Anti-trust Chief Thurman Arnold, in course of FTC presentation, told committee "we think we will be successful in maintaining our conclusion" that 22 oil companies involved in "the big oil suit", have by merger and acquisition, dominated the market.

Mr. Arnold's statement was made during testimony of FTC Chief Counsel W. T. Kelley, who recommended FTC be given the same power as Justice Department now has under the Sherman Anti-Trust Act, to prosecute divorcement proceedings in industries deemed monopolistic. This would be accomplished by amendment of Clayton Anti-Trust Act to permit FTC to prevent monopolistic acquisition of corporate assets and require divestiture of assets so acquired.

Seeks Wider Powers

Mr. Horton, in discussing FTC's desire to investigate oil industry, said:

"The Commission, from time to time and as the necessity arises, could initiate investigations of certain industries which would be greatly in the interest of the public. I can refer specifically to the oil industry, which as we all know is impressed with a deep public interest. In our appearance before this Committee on October 16, 1939, we presented at that time a series of problems with which the Commission is confronted dealing particularly with

(*Continued on page* 8)

Station Employes in Midwest Leave for Defense-type Jobs

*(This is the third in a series of NPN articles giving a first hand account of how industrial plants with defense orders are "grabbing" service station personnel. The first article appeared in Feb. 5 issue; the second in Feb. 12 issue.—*EDITOR*)*

N. P. N. News Bureau

CHICAGO, Feb. 17. — The industrial boom under way in many sections of the Middle West is causing oil marketers to be concerned over the loss of service station personnel to these industries.

The drift of station employes and lessees is greatest in the booming industrial sections, where higher pay and shorter hours in defense industries, and steel plants and other sources of supply for defense industry are providing competition for manpower which most oil stations cannot meet. In agricultural sections of the Middle West, however, little effect has been noticed on the industry's stations due to the defense "boom".

Intense competition among stations in the Middle West, particularly in the metropolitan Chicago area, which results in lowered income for station lessees also is fostering the loss of station employes and lessees.

The union scale wages in Chicago's service stations were reported as follows: Washer, $18.24 average weekly pay, or 38c per hour; greaser, $21.60 weekly, or 45c an hour; driveway man, $24.96 weekly, or 52c an hour; and station manager, $31.20 weekly, or 65c an hour.

Bradley M. Provis, president of the Gasoline Retailers Assn., said that most of the stations in Chicago were on union scale.

Low Wage Scale

Average weekly income of lessee operators is approximately $40 a week, according to most reports from marketers in the Middle West, and the drive-way attendant or service station employe will average $90 to $100 a month.

"There are many operators and drive-way men in metropolitan Chicago, one oil company

(*Continued on page* 20)

Jersey Unveils New Catalytic Cracking Unit

N. P. N. News Bureau

NEW YORK, Feb. 15.—Standard Oil Co. (New Jersey) this week announced what it termed a "new and highly flexible type of petroleum cracking known as the fluid catalyst process . . . employing a revolutionary catalytic technique."

The new development, which was announced by W. S. Farish, president of the New Jersey Standard, and F. A. Howard, head of the Standard Oil Development Co., is principally in the technique of cracking. Explaining the essential difference between its new fluid catalytic cracking, and the intermittent type of catalytic cracking which has gained wide attention in recent years, Mr. Howard said:

"A chamber operating on the old principle of catalytic cracking might be compared with a single cylinder engine. Oil vapor was passed through the chamber, which contained catalysts in the form of lumps or pellets, for perhaps twenty or thirty minutes. During this time carbon deposits accumulated on the catalyst, impairing its effectiveness.

"Consequently, it was necessary to stop operations, purge the unit to get rid of vapors and burn out the accumulated carbon with oxygen. All of this took more time than was consumed in actual cracking operations. Moreover the regeneration, or restoration of the catalyst in the chamber, required higher operating temperatures and much automatic apparatus which was quite expensive. In order to maintain continuous cracking operations in this type of catalytic process it was necessary to have several chambers, just as several cylinders are required to give an uninterrupted flow of power in an automobile engine.

"In the fluid catalyst process we maintain continuous cracking operations in one chamber, and regeneration, or cleaning of the catalyst, in a separate zone, through which the catalyst flows like a liquid. The only thing that moves is the catalyst itself and the operation is continuous, like that of a steam turbine."

Besides simplification of operation, the company states that

the new process will require considerably less investment than that for the stationary type of catalytic cracking now employed by the oil industry. It will use gas oil or reduced crude as charging stock. Catalysts used in the process are generally available today.

Experimental runs have shown yields of 50% of gasoline of ASTM octane rating between 78 and 82, or between 92 and 96 octane number by the 1939 Research test method, the company stated. Another claimed advantage is in the production of more uniform motor fuels from different type charging stock.

The company stated that the development of the fluid type of catalytic cracking would "result in a continuous slow rise in octanes." However, the company said it has no intention of using it to manufacture aviation fuel, and that it will be used exclusively to make motor gasoline.

To Build 3 Plants

Patents on the process are 100% American owned and will be available to the oil industry under a licensing arrangement.

At present time construction of three 6000-bbl. commercial plants using the fluid catalytic process are underway at the Bayway refinery of Standard Oil Co. of New Jersey, at the Baton Rouge refinery of Standard Oil Co. of Louisiana, and at the Baytown, Texas, plant of Humble Oil & Refining Co.

The Baton Rouge installation is expected to be in operation this year, and the other two units will be complete somewhat later, depending on the effect of the national defense program on deliveries of construction material, the New Jersey Standard head stated.

Tracing the development of the fluid catalyst process, Mr. Farish said that a considerable amount of the intensive technical work has been carried on by the Standard Oil Development Company during the past few years. He related the following developments:

"In hydrogenation, the most complex and highly developed of the catalytic oil processes, new catalysts were developed and successfully demonstrated in full commercial operations. The Baton Rouge hydrogenation plant is actually producing at the present time more than 100% by volume of gasoline from gas oil.

"In catalytic cracking, one of the most direct of the catalytic oil processes, the new, continuous fluid catalyst process—as contrasted with the stationary catalyst type previously employed by the oil industry—proved to be so successful in a semi-commercial unit that it was decided to proceed immediately with installation of the three larger commercial plants.

"The Jersey technical staff had developed a stationary catalyst type of cracking process just before the outbreak of the present war. We originally planned to install this type of operation in a number of our refineries but decided to delay action on the stationary type because our work on the continuous fluid catalyst process had reached the stage where commercial application of it seemed imminent.

"What we feared was that the intermittent type plants would be obsolete before they were completed because the fluid catalytic process held forth such promises of economy in plant and operating cost and in yields. Our opinion in this respect has been borne out by events and our present plans are that all future catalytic cracking construction in the Jersey refineries will be of the lower cost, more efficient, fluid catalyst type."

Expanding further on the Jersey company's technical developments in 1940, Mr. Farish stated that the first large commercial hydroforming plant went into operation recently at the Pan American Refinery at Texas City, Texas. Three additional installations are now under construction. The process was developed jointly by The M. W. Kellogg Company, Standard Oil Company (Indiana) and the Jersey Technical organization, he said.

Improves Low Octane

"This process," he explained "which operates principally to improve low octane gasoline fractions, may be said to be a step half way between hydrogenation and catalytic cracking. The process uses, although it does not consume, hydrogen, and we had a successful commercial demonstration of it last year in one of our domestic refineries."

Mr. Farish declared that all Jersey's patent rights dealing with catalytic cracking and with hydroforming, as well as licensing rights in these fields previously purchased from other interests, had been acquired by the Standard Catalytic Company (formerly the Standard-I. G. Company) which is a wholly owned subsidiary of Standard Oil Company (N. J.). Standard Catalytic Company has made working arrangements for the licensing of these patents to the petroleum industry through Universal Oil Products Company and The M. W. Kellogg Company.

California Standard Plans Houdry Plant

N. P. N. News Bureau

LOS ANGELES, Feb. 15.—Construction of a Houdry catalytic cracking and reforming plant at its El Segundo refinery has been authorized by the Standard Oil Co. of California. In a formal announcement by the company, the new plant was said to represent an investment of about $4,500,000 and construction was expected to be completed early in 1942.

Following the successful operation of a pilot plant for testing the applicability of the process to California oils, plans were formulated for the new undertaking, which Standard's announcement said, will give California "a new high octane catalytic motor gasoline, outstandingly different from any fuel now produced on the Coast. The plant will also increase the company's production of high octane aviation gasoline to an important extent. This additional output comes at a propitious time to assist materially in meeting the increased demands of the Army and Navy for high octane aviation gasoline."

Within a period of about 5 years, the company is estimated to have authorized the investment of approximately $9,000,000 for the increased output of high octane and aviation gasoline.

New Alkylation Unit Planned For Sohio Toledo Plant

CLEVELAND, Feb. 15.—Construction of a new catalytic refining unit will be started soon by Standard Oil Co. of Ohio at its Toledo refinery. Unit will embody acid alkylation process. Output will be approximately 3000 bbls. daily of alkylate (a blending agent used to make 100-octane gasolines).

FTC Examiner Seeking Powers To Probe Petroleum Industry

(*Continued from page 7*)

the marketing and distribution of gasoline.

"The complaints relative to these practices are coming to the Commission in unabated numbers, but owing to the lack of funds and personnel, the Commission cannot conduct a broad general investigation in order to ascertain the facts which would enable it to bring about a proper solution of these vital problems. The practices, while local to many communities, are usually part of a broad general plan and the solution of them cannot be accomplished by making sporadic local investigations at times throughout the United States.

Favors National Policy

"The most important consideration, however, that is presented in a broad investigation of this entire industry is that through such an investigation, the Congress might be enabled to establish a definite national policy dealing with the production and distribution of oil and petroleum products in the light of national security and defense. The Commission being a creature of the Congress could be of very great assistance to the Congress in the solution of such important questions, not only in this industry, but in numerous other industries upon which it may desire to establish a national policy expressed through appropriate legislation."

Mr. Horton, during appearance before TNEC on Oct. 16, 1939, urged a broad Trade Commission investigation in oil industry, after alleging many marketing practices then in use in retailing of petroleum products are "perhaps illegal". List of "questionable practices" was presented to Committee by Mr. Horton which included unjustified price differences, tying and exclusive dealing contracts, gasoline price fixing, oppressive tactics by major marketers against wholesalers and retailers, misbranding and false and misleading advertising regarding grade and quality of gasonine and lubricants, discriminatory contracts with tire and motor accessory manufacturer, ers, sales and loans of pump and tank equipment by marketers of gasoline and lubricants, and intercompany sales. (See NPN, Oct. 18, 1939.)

Mr. Arnold's reference to Justice Department's suit against American Petroleum Institute, Ethyl Gasoline Corp., 22 major oil companies and their alleged affiliates, was brough into discussion of FTC's proposed amendment of Clayton act as an illustration of his views on the effects of corporate mergers.

Mr. Arnold at the time was acting as chairman of economic committee meeting and said he wanted to make it clear what the law is today—that the Justice Department has the power, under the Sherman act, to secure divorcement of corporate assets, whereas FTC, under Clayton act, is without such authority.

'Aims to Supervise Business'

Mr. Kelley, immediately preceding Mr. Arnold's statement, had been outlining for com-

mittee the view that Supreme Court in Standard Oil case had invoked the rule of reason at common law to hold "the ability, the power to control the markets so as to enhance prices, are unlawful per se." This was reaffirmed by Justice William Douglas in Supreme Court's decision Madison Oil Case I, Mr. Kelley said.

Economic Committee Chairman J. C. O'Mahoney, following receipt of Examiner Horton's proposal for a FTC investigation of the oil industry, observed that recommendations of Justice Department and Trade Commission "both point to a larger government establishment to supervise business."

Mr. Horton protested it was "not to supervise business," whereupon Senator O'Mahoney said: "Well to enforce the law." The senator also stated FTC recommendations amounted to "a repetition of those which we have received in the past from other government agencies—that more appropriations and larger staffs are needed to police industry and enforce the law."

FTC Dismisses Gulf On 'Reclaim' Charge

WASHINGTON, Feb. 14.—Federal Trade Commission has dismissed complaint issued April 1938, which charged Gulf Refining Co. with disparagement of reclaimed lube oils.

FTC action followed filing by Gulf on Feb. 6, of a motion to dismiss, which contended Commission was without jurisdiction because of failure to show competition in interstate commerce had been substantially affected or that public interest had been prejudiced.

"Whether the cursory methods of treatment (of crank case drainings) ordinarily employed succeed in making a satisfactory lubricant, is a disputed question in this proceeding, but settling that is not necessary in the disposition of this motion," Gulf told Commission.

Complaint, it was stated, involved isolated instance of sending to Gulf employes and leased station operators in New Orleans, circular letter, dated Dec. 16, 1936, urging them to refuse to sell crank case drainings to reclaimers. Only one concern, Lube Laundries, Inc., of New Orleans, claimed it had been damaged, Gulf said, denying it was guilty of any unfair practice of the Federal Trade Commission Act.

TEXAS CITY, Tex., Feb. 17.—Fire that destroyed Pan-American Refining Co.'s dock here today failed to damage tanker Pan-Massachusetts which had just finished taking on a cargo of 105,000 bbls. of gasoline.

Seven Majors Seek Dismissal From Treble-Damage Charges

Special to N. P. N.

MADISON, Wis., Feb. 15.—Major oil companies convicted in federal court here in January, 1938, of conspiracy to violate the anti-trust laws, contend their conviction did not carry the interpretation placed upon it by jobbers seeking treble damages in resulting civil suits.

An answer, filed in federal court here, asks dismissal of a suit filed by Northwestern Oil Co., Superior, Wis., which seeks damages trebling the $750,000 loss it alleges resulted from the gasoline price fixing conspiracy charged against the major companies. The Northwestern claim is the largest of any presented in 13 civil suits launched in this district.

The seven defendant companies joining in the answer allege the Northwestern Oil Co. complaint fails to state a claim upon which relief can be granted.

They admit they were convicted and that the conviction was sustained by the United States Supreme Court, but the answer denies that the offense of which the defendants were convicted was the offense alleged in the complaint.

Deny Fixed Prices

They deny that plaintiff was compelled to pay raised and fixed prices for gasoline or suffered any damage by reason of the conspiracy alleged.

Furthermore, they deny specifically a paragraph in the complaint alleging "that in February, 1935, and to the date of the complaint, defendants, with other major companies, unlawfully engaged in a conspiracy in violation of the Sherman act, to artificially increase, fix and maintain spot market tank car prices."

The answer denies that gasoline supplies were available to jobbers only under terms of contracts or that jobbers were compelled, persuaded or induced to enter into a contract or contracts with one or another of the major companies.

"Defendants say," it continues, "that gasoline held for sale by major companies at the times mentioned was not the only source of supply for jobbers . . . but that in fact many jobbers were supplied from sources other than major oil companies."

Hold Contracts Not Binding

Admitting that many jobbers, over a period of years, have dealt in gasoline of designated brands and no other, the answer says the defendants "are without knowledge as to the truth of the averment that jobbers, including plaintiff, cannot sell the gasoline of any other supplier than the refiner with which they have contracted."

It denies that "for many years past defendants and other major oil companies doing business in the midwest territory have uniformly adopted and embodied in respective standard forms of jobber contracts virtually identical provisions governing terms and conditions of sale."

It denies that contracts and their enforcement constituted a restraint upon trade in interstate commerce in violation of the Sherman Act, as alleged, and that compliance therewith caused the plaintiff to pay more for gasoline than it would have paid otherwise.

It denies the plaintiff was obliged to purchase gasoline for resale on the basis of the tank car spot market price.

Joining in the answer were the Socony-Vacuum Oil Co., Continental Oil Co., Pure Oil Co., Shell Oil Co., Inc., Sinclair Refining Co., Mid-Continent Petroleum Corp., and Phillips Petroleum Co.

Nebraska Refinery To Ship Via Water

N. P. N. News Bureau

TULSA, Feb. 18. — Stating that it is unable to expand the marketing territory into which Falls City, Nebr., crude and petroleum products move under the present "unfavorable freight rate structure," Mid-States Refining Co., announced plans to utilize the nearby Missouri river for transportation of products up and down the Missouri and Mississippi rivers.

The Falls City refiner will build 30,000 bbls. of storage at Rulo, Nebr., about 12 miles from the Falls City field, on the high banks of the Missouri. From there, Nebraska crude and industrial-type fuel will be barged by contract carrier to Chicago, the Twin Cities, Davenport, Rock Island, Moline, Kansas City, Omaha and intermediate points. Eventually, instead of trucking Mid-State's products to the terminal, the crude and fuel may be piped to Rulo.

For the time being, the barge set-up will be used to supply Mid-South's contract obligations for crude and heavy fuel used for industrial purposes.

The first barge of Nebraska fuel is expected to leave Rulo about March 15, if water conditions permit, according to President R. D. Swan, of Mid-States.

Crude, Fuel Oil Imports Announced for 1940

WASHINGTON, Feb. 12. — U. S. Bureau of Customs has announced preliminary figures on imports of crude petroleum and fuel oil within quota limitations provided under trade agreements, covering the period Jan. 1, to Dec. 31, 1940, as follows (in gals.):

	Established quota for calendar year	Imports as of Dec. 31, 1940
Venezuela	1,869,014,616	1,738,917,986
Netherlands	527,691,192	499,039,008
Colombia	103,978,560	21,995,228
Other (mostly Mexico)	98,779,632	(tariff rate quota filled)

New Specification Would Hike Octane For Premium 'Gas'

WASHINGTON, Feb. 18.—Octane rating of premium gasoline purchased by Procurement Division would be raised from 77 to 80 under revised specifications now being developed by Federal Specifications Board.

Proposed revision, according to Board, would represent both a modernization of federal specifications and an effort to meet military demands—the Army having decided to use an all-purpose gasoline of 80-octane rating, insofar as possible, for its tanks and other ground equipment.

New specifications would be essentially same as present VV-M-564, covering motor fuel R-70 and R-77, except for change in octane rating of premium grade. Automatic seasonal change and elevation requirements for present "R" gasoline would be retained in new specifications.

Specification VV-M-571A, which covered grades V-65 and V-75 until discontinued last July, would be revived as VV-M-571B, to cover motor fuel V with an octane rating of 80. Specification VV-M-564, now covering motor fuel R-70 and R-77, would be limited to 70-octane gasoline to be known as motor fuel "R."

Enters Plea of Guilty In State Tax Case

MINNEAPOLIS, Minn., Feb. 17.—Trial of Robert Tousley on charge of withholding state gasoline taxes came to a sudden ending today in Ramsey county district court when he entered a guilty plea. Mr. Tousley, 26, head of the Wholesale Petroleum Co. of Anoka, was arrested Jan. 30 on complaint of Arthur B. Anderson, head of the Minnesota oil inspection department. He was charged with first degree grand larceny on the basis of state claim he had withheld more than $5000 in state gasoline taxes collected in November and December.

NPN's Log

On Oil Legislation

Oil legislative information, summarized below, is based on reports deemed reliable although NATIONAL PETROLEUM NEWS assumes no responsibility for the accuracy or completeness of this information.

CONGRESS

SENATE BILLS

S-778, Langer, N. Dakota.
Provides proceeds of sale of oil and gas found on North Dakota state lands shall be spent for schools, one-half to be available for immediate expenditure and balance placed in permanent fund. To Public Lands and Surveys Committee.

CHANGED STATUS

HJR-77.
Authorizes Maritime Commission to build 200 oil-burning cargo ships costing $350,000,000. Signed by president.

STATE BILLS

Arizona

H-155, Payne
Provides collection of 0.5c gasoline tax by counties. To Municipalities Committee.

Arkansas

H-370, Field
Enables crude petroleum and natural gas royalty owners and producers to verify remittances. To Oil and Gas Committee.

California

SJR-10, Biggar
Memorializes Congress to repeal federal gasoline tax, or to require funds be apportioned to the states. To Revenue and Taxation Committee.
A-945, Robertson
Makes state the payee on checks accompanying bids for oil and gas leases. To Governmental Efficiency and Economy Committee.

Connecticut

S-1088, Downes
Compulsory auto liability insurance. To Judiciary Committee.

Delaware

H-82, Willis
Provides for refunds of tax on motor fuels used in trucks for agricultural purposes. To Revenue and Taxation Committee.

Georgia

S-89, Coxon, et al
Same as H-42. Provides that persons or corporations constructing, running or operating pipelines for carrying petroleum products shall have right to cross public property to necessary extent. To General Judiciary Committee No. 2.
S-90, Coxon, et al
Same as H-41. Grants persons or corporations constructing, running or operating pipelines for carrying petroleum products the right of eminent domain. To General Judiciary Committee No. 2.

Idaho

H-228, Highways Committee
Entitles highway and good roads district to refund of motor fuel tax.

Illinois

H-145, Mundy
Reduces auto license to $3. To Motor Vehicles Committee.
H-170, Powell
Eliminates from the gasoline tax the allowable deduction for collection purposes. To Efficiency and Economy Committee.

Kansas

H-211, Fowler
Provides that gasoline without name or brand shall have "no brand" stamped on the pumps.
S-87, MacGregor
Repeals section taxing surface and mineral rights separately.

Maine

H-1497, Holman
Imposes 1c per gal. tax on lubricating oils.
H-1479, Richardson
Imposes tax of 4c a gal. on motor vehicle fuels other than gasoline.
H-1475, Holman
Increases gasoline tax from 4 to 5c.
H-1478, Richardson
Taxes diesel engine fuel like gasoline.

Michigan

SJR-"C"
Uses 10% of highway funds for retiring any deficit in the general fund for next 10 years. To Judiciary Committee.
S-118, McCallum
Same as H-166. Creates state revenue collection department to collect gasoline taxes. To Taxation Committee.

Missouri

H-40, Hess
Declares pipelines running into or through state carrying crude oil, refined oil, gasoline or natural gas, to be common carriers and subject to regulation.

Nebraska

Bill-470, Nebauer, et al
Exempts from tax fuel used for agricultural purposes.

New Mexico

H-155, Payne
Provides for collection of ½c gasoline tax for counties. To Municipalities Committee.
H-257, McCormick
Prohibits production of oil and gas by producers in excess of his share of pool. To Oil Committee.
S-194, Dickason
Authorizes municipalities to levy 1c gasoline tax to retire special assessment bonds. To Judiciary Committee.
S-193, Dickason
Provides payment of municipal bonds out of gasoline tax.

New York

A-891, Milmoe
Same as S-723. Provides for separate registration of motor vehicles engaged in carrying inflammable liquids. To Motor Vehicles Committee.

North Carolina

S-91, O'Berry
Provides for semi-annual inspection of all motor vehicles. To Public Roads Committee.

Ohio

H-478, Hess
Requires two men on every commercial freight truck.
H-568, Nailor
Prohibits dilution of natural gas by addition of non-combustibles and provides fines.
H-654, Kirkpatrick
Provides a sliding scale of allowance for gasoline shrinkage in computing taxes.
H-382, Myers
Prohibits discrimination in sale of petroleum products.
H-386, Hunter
Specifies parts of gallon permissible for standard measure of liquids. (Bill aimed at 1/3-gal. measures.)

South Dakota

H-308, Gooch
Limits load of inflammable liquids to 1500 gals.
H-275, Metz
Authorizes public utilities commission to regulate the size, weight and load of motor vehicles in places where railroads have been abandoned.
H-241, State Affairs Committee
Creates oil and gas board to conserve oil and gas and provides regulations.
H-345, Harding
Apportions motor fuel tax.

Tennessee

H-781, Doak
Same as S-565. Gives cities share of gasoline tax.
H-695, O'Dell
Same as S-486. Authorizes taxing of motor vehicles by the city of Bristol.
S-503, Mahoney
Same as H-736. Authorizes tax on motor vehicles in Chattanooga.
S-540, Hickerson
Same as H-754. Exempts cities and counties from gasoline tax.
S-570, Dossett
Gives cities 25% of gasoline tax.
S-724, Riggins
Provides ½c per gal. tax on marine oil depots.
H-994, Shelby, Del.
Exempting certain petroleum products in transit from inspection fees.

Texas

H-319, Love
Authorizes governmental agencies operating airports to collect refunds of gasoline sold and used in aircrafts. To Revenue and Taxation Committee.
H-326, Frichs, et al
Requires licensees to mix sufficient chemicals with motor fuel, upon which tax may be claimed, to convert said fuel to a distinctive color. To Agriculture Committee.

West Virginia

H-211, Ballard
Makes 5c gasoline tax permanent. To Taxation and Finance Committee.

CHANGED STATUS

Indiana

H-333, Willis
Amends oil inspection laws to provide for appointment of chief inspector and other employes by governor, secretary of state and auditor of state. (Emergency). Passed House.
H-270, Beasley
Repeals truck tire weight tax. Passed House.
H-259, Jose, et al
Gives persons under contract to provide labor or material in drilling oil or gas wells a lien on land or leasehold, machinery, buildings, oil or gas produced therefrom. Passed House.

North Carolina

H-107, Stone
Allows payment of motor fuel tax refunds, with 10% deduction, where claims are filed late but within 30 days after specified time. Passed House and Senate.
H-108, Stone
Exempts from tax all motor fuel lost through lightning, flood or windstorm, where loss is suffered by distributors who elected to pay tax on purchases or receipts, in lieu of amount sold, distributed or used. Passed House and Senate.

North Dakota

H-55, Educational Committee
Reserves for state 50% of net proceeds from sales of oil, natural gasoline or minerals found on state land. Passed Senate and sent to Governor.

Oregon

H-78, Heisler, et al
Exempts certain military motor vehicles from weight and load restrictions. Withdrawn.

Tennessee

H-471
Same as S-378 by Hickerson. Use fuel tax of 7c per gal. on all fuels used on highways not included under present gasoline tax law. Passed Senate and sent to Governor.
S-117, Warren
Same as H-179. Amends code relating to inspection of illuminating oils. Passed House.
S-257, Ragon and O'Dell
Same as H-309. Amends code relating to petroleum products inspection at bulk plants. Approved.
S-695, O'Dell
Same as H-486. Authorizes taxing of motor vehicles by the city of Bristol. Passed Senate.

Utah

H-43, Schenck, et al
Refunds tax on fuel used in stationary engines, tractors, and the like, and cleaning and dyeing. Killed in House.
S-90, Farr
Grading and inspection of motor vehicle fuels. Withdrawn.
S-18, Farr
Imposes 4c excise tax on motor fuels. Passed House.

Vermont

H-46, Haskell
Limits gross weight of trucks to 600 lbs. per inch of tire width. (Present limit is 15,000 lbs. per axle). Passed House.

Wyoming

S-80, Committee "12"
Amends definition of "gasoline". Passed Senate.
S-41, Anderson
Exempts tractor fuel from gasoline tax. Passed House.

Auto Group Attacks Car Trucking Laws

N. P. N. News Bureau

CLEVELAND, Feb. 15.—An attack on Pennsylvania's law to regulate truck and trailer transportation of motor vehicles on the highways will be made in the current session of the state legislature by the Pennsylvania Automotive Assn., according to C. S. Klugh, manager of the group.

The law, passed in 1939, but not effective until Jan. 1, 1942, prohibits carrying of vehicles on 2 levels, or over cab of carrier, and limits height to 115 in. from ground. Because of length limitations, truck carriers would be limited to hauling 2 motor vehicles.

Truck carriers, the association's brief charges, will not be able to compete with railroads. The brief points out that transportation of cars by trucks is the safest operation in the entire trucking industry, and that such form of transportation has resulted in savings of over $343,000,000 to purchasers of new cars from 1928 to 1939.

The effect of this law, and a similar one in West Virginia, is pointed out will be to prevent all such transportation from Michigan to all the states east and northeast of Pennsylvania. This barrier of interstate traffic, the group believes, would cause retaliation by other states affected.

THE EDITOR'S PAGE

Readers Comments and Opinions will be much Appreciated by—WARREN C. PLATT, Editor and Publisher, Penton Building, Cleveland, O.

National Council for Independent Oil Jobbers Formed by State Association Presidents

The presidents of 10 state oil jobbers' associations have completed plans for a central organization through which state jobber associations can express the opinions and desires of their members on national questions.

In carrying out these plans, on the occasion of any national question pertaining to oil jobbers arising, the presidents of all state Independent jobbers' associations will be invited to participate in the discussions in which, it is hoped, a national policy for oil jobbers may be arrived at.

This new organization begins its existence without any preconceived ideas on any subject now before the oil industry. And it does not expect to try to have any ideas until and unless some national question concerning oil jobbers should arise. And only then will this new organization undertake to have an opinion if agreement can be reached by the presidents of the various state associations participating in the conference.

The new organization has no secretary, no paid officer, no treasury, no office headquarters, nor does it expect to have any. Its work will be carried on by its member presidents and the secretaries of the member associations as their services may be called upon.

Having in mind the score or more of phoney oil marketing associations that were organized overnight in the Blackstone Hotel at the national conference in Chicago called by the American Petroleum Institute to plan for an oil code back in 1933, the present group of state presidents will see to it that all participating in the national conference will be the presidents of duly organized and truly Independent oil jobber associations, but to all these hearty welcome will be extended.

The name of this new national organization as at present decided on is "The Presidents' Council of State Independent Petroleum Jobber Associations." Its first chairman is Wallace H. Wright, president of the Illinois Petroleum Marketers Association and veteran oil jobber of East St. Louis where he has operated as the Crescent Gas Organization. Vice-chairman is Phil T. Williams, president of Indiana Independent Petroleum Association and, with his brother, constituting Gaseteria, Inc. of Indianapolis.

The other eight state presidents participating in completing the plans are:

Sewell C. Harlin, president of the Kentucky Petroleum Marketers Association and president of the Central Oil Co., Glasgow, Ky.

Ralph Brandon, president of the new Louisiana Petroleum Marketers Association and Shreveport, La., marketer.

H. L. Thatcher, president of the Tennessee Oil Men's Association and president of H. L. Thatcher, Inc. of Chattanooga, Tenn.

Vincent J. Smith, president of the Missouri Independent Oil Jobbers Association and president of the Smith-Turner Oil Co. of St. Joseph, Mo.

Fred Kistler, president of the Kansas Oil Men's Association and president of the Fred Kistler Oil Co., Coffeyville, Kans.

Eric V. Weber, president of the Ohio Petroleum Marketers Association and president of the Eureka Oil Co., Cincinnati and who is also vice-president for marketing of the American Petroleum Institute.

John H. Parker, president of the North Carolina Oil Jobbers Association and president of the Coastal Oil Co., New Bern, N. C.

Fred W. Herlihy, president the South Carolina Independent Oil Jobbers Association and president of the Power Oil Co., Orangeburg, S. C.

President Wright of the Illinois association called the various conferences at which first a small group, then a larger group and finally all of the present group were brought together and the plans developed.

The group organization is informal, without written constitution and bylaws, the idea being that the group can only represent the wishes of the individual associations and cannot impose its opinion —the opinion of any majority of the Presidents' Council—on the members of the individual state associations. The member presidents can act only on the authorization of their own state executive committees or boards of directors. The aim of the Presidents' Council would be to represent the common views of all or to aid in consolidating the views of such of the member state associations presidents as agreed on a position on a given question.

The Council is now ready to consider any question of national importance that may be proposed by any of the state associations.

If and when such a proposal is made to the Council, it will be called together, invitations will be extended to presidents of all state jobbers' associations to attend, and the group will then proceed to consider the proposal to see if it can or should be acted on by all associations. If so, then the proposal would be submitted to the member associations and their respective actions brought back to the Council for its action. If united action can be obtained, the Presidents' Council would present the views of the jobbers of the subscribing associations in whatever way would appear to be most effective.

The organizing group called together by Chairman Wright had no "causes" in mind for action but it anticipates that out of the demands of war defense might very easily come proposals on which jobbers as jobbers should be heard. Such national proposals might be for some sort of an oil code, or for a general oil industry advisory committee on which the jobbers, this time, want full representation. The jobbers have not forgotten how they were kept out in the cold on the old code committee—the "P. & C. Committee" in 1933-5, even through the gasoline retailers were finally given place on that committee. Probably the chief reason for the jobbers not being on that committee was that they could not get their state associations together to put up a solid front and fight. The jobbers had a loose-jointed information committee of its paid secretaries but it never had been able to hold but a few meetings and then not do anything.

Jobbers' problems are primarily local and state problems. The original national oil jobbers association of 32 years ago this coming July finally disintegrated because of that fact, and also because enough jobbers came into existence to maintain state associations. Since that time, many states have had their own jobber organizations and from these have developed almost a score that are strong enough to maintain a permanent full-time secretary. Others, because of lack of enough jobbers, or their failure to give support, have disappeared.

The strong effort of New Dealers to lodge more and more control over all industry and particularly over the oil industry in Washington, makes for occasions for all oil jobbers to have need for a medium through which to express their views. In the formulation of taxes, business men of the type of oil jobbers, have been largely overlooked, despite the assurances of some "statesmen" that they are mindful of the "small business man." If the Roosevelt-Ickes ideas, as now written in the oil control bill that was before Congress all last session but did not get out of committee, should be revived in this Congressional session, oil jobbers the country over would have a vital interest. With so many totalitarian and other forces, even Communistic forces, at work in Washington, forces that seem to be far in the inner circles of the administration, most anything is liable to be proposed of the greatest interest, even life and death interest, to oil jobbers.

On such questions, jobbers do have opinions and they should have a means of expressing those opinions. Next to oil producers, oil jobbers are the most powerful faction in numbers in the oil industry, that is in numbers that can be brought together in workable groups. Gasoline dealers, of course far outnumber any other oil group, but dealers have not the money or trained men to make real use of their numerical strength. How-

ever the dealers, if necessary, could be aided greatly in any organization work on national questions through the agency of the oil jobbers.

Among oil jobbers are members of many state legislatures, are mayors of their towns, are officers of their counties and are members of committees of both political parties. In fact, in the U. S. Senate, at present, are two oil jobbers, Senator Herring of Iowa who ran an oil jobbing business in connection with his automobile agency, and Senator Gurney of North Dakota of the famous "House of Gurney" that deals in many things and quite largely oil. From Nevada is Senator Berkley Bunker, service station operator.

Oil jobbers are just as an important a part of the "management" of oil marketing as are the marketing departments of the major oil companies. Yet, for some reason that no one has ever clearly figured out, oil jobbers as a group have been rather brushed aside as "middlemen" yet they are no more "middlemen" in the ordinary use of that word, than are the division and district sales and promotion managers and supervisors of the integrated oil companies. Jobbers are, in fact, the men who actually manage and promote marketing in local units. They are the men who supervise the effort of the dealers, who pass on to them the sales and advertising and merchandising ideas of the national brands, or if "unbranded" jobbers, they pass on to the dealer their own sales plans.

More than 42% of all gasoline sold through service stations is distributed by oil jobbers and much of that is sold through the jobbers' own stations. These jobbers are developing as tire and battery distributors so that many a tire and battery company prefer them to any other type of distributor.

The strong and progressive jobbers are growing in number and in position in the oil industry. A number of major oil companies seem to be preferring jobber distribution to any other type.

It would seem only logical therefore that oil jobbers, who have proved their worth through the maintenance of strong state associations for many years, should provide a place where their state officers can council together for the national good of these oil jobbers.

This "Presidents' Council", we believe, should be welcomed by every oil man as representing an exceeding powerful and able portion of this oil industry, a portion that at least from now on should be accorded a place in the councils of the industry that has long been their due.

Ickes Would Build a Pipe Line

Keep your eye on Brother Ickes and his proposed venture into the pipeline business.

At his press conference last week, Secretary Ickes said that the Interior Department "had determined" that additional pipelines were necessary for war purposes from the West to the Atlantic States.

Since when has the Interior Department been managing this war or war defense? Or has taken over the functions of the National Defense Advisory Commission of which Ickes is only one member?

Additional pipeline facilities have been discussed and several oil companies are said to stand ready to build them if they are needed, but so far those officials charged with running war defense do not seem to have decided the question, in fact they seem to lean to the idea that present transportation facilities may be sufficient.

Ever since Ickes and his associates got an insight into the vastness of the oil industry during the code days, he and his crew have been scheming to get control of it. Even in the code days, they had a bill drawn to take over the industry but that move was held up until the Roosevelt-Ickes oil control bill was put into the last Congress.

Ickes now controls a lot of the government's electric power development. He also is dictator of the coal industry. Oil is the big remaining source of power not under his thumb.

In the present Roosevelt "lease and lend" bill for ostensible aid to Great Britain is plenty of authority and money for the construction of this Ickes pipeline to carry petroleum and its products for aid to any friendly nations the President may select as being of possible war help to this country. Amendments have been proposed to restrict this authority and make it subject to Congressional action but whether those amendments will finally prevail remains to be seen. The New Deal does not surrender easily moves for more totalitarian authority.

Drew Pearson, Brazilian-retained radio commentator, said Sunday night that though "most" of the business men at Washington "are patriotic," there was going to be a general house cleaning because defense had not moved rapidly enough, so it would be said, to suit the New Dealers. It is well known that the inner circle which holds to extreme totalitarian views has been much put out at the presence of any businessmen in authority at Washington.

The play at Washington by the inner circle of the New Deal has been to maintain loudly that the business men are failures, that they have not kept up with the "demands of the war defense," though the "objectives" of war defense, such as they are, have generally been set by these same radicals and rather obviously at such extremes as to be impossible for even a miracle man to attain.

The squeeze play is on and evidently Brother Ickes has joined it. If the "lease lend" bill goes through anywhere near its original New Deal form we will hear much more about the "Ickes Pipe Line" for aid to "our allies." If he ever gets the pipe line, then we will find him with refineries for is not Ickes in the power manufacturing business already and what is the difference between electric and gasoline power so far as the unlimited purse of government is concerned?

Once in the oil business we undoubtedly will find the Ickes Pipeline and Refining Administration giving more heed to the wishes of the Department of Justice this time, and working for lower prices instead of higher prices, which is the main aim of the Arnold trust-busting activity.

And then, every oil man will feel the might of government in the oil business.

Pennsylvania Assembly Hears Proposal To Tax All Fuel Oil 3 Cents a Gallon

Special to N. P. N.

HARRISBURG, PA., Feb. 17.—Pennsylvania general assembly has been asked to consider laying a tax of 3c per gal. on all fuel oil sold in the commonwealth to bolster a fund to aid financially distressed school districts.

Representative J. Noble Hirsch, democratic legislator from Schuylkill county, heart of Pennsylvania anthracite fields, introduced the measure in the House.

Similar bills have been introduced into the assembly in past years by so-called coal interests which feel that fuel oil is a "laborless" fuel and should be taxed just as gasoline and other petroleum products but in every case the measures have been unsuccessful in receiving approval. Fuel oil now sold in this state is tax free.

To Aid School Districts

Hirsch's measure is along lines of past bills, sponsored by coal interests, except it provides that the money, instead of going into the general fund, will be used to aid tax-poor school districts.

The measure calls for the placing of a 3c tax on all fuel oil sold or delivered in Pennsylvania, that used by United States government, that used in the manufacture of gasoline, and that used by ships in interstate or foreign commerce. It provides that the commonwealth and any of its political subdivisions are not exempted and must pay the levy.

Under the bill, permits will be issued distributors who must make a monthly report of all fuel oil sold and must make a monthly payment of taxes on all fuel oil sold.

Delivery Ticket File

Purchasers of fuel oil under the bill are required to keep yearly records of oil received, tax paid to distributors and must keep a file of delivery tickets.

Money thus derived from the sale of fuel oil goes into the state school fund for use of financially-handicapped school districts.

Several penalties are added for violation, the most stringent being $2000 fine or 2 years imprisonment for selling fuel oil without a permit, which must be accompanied by a $1500 bond.

'Gas' Tax Increase Fought by Dealers

N. P. N. News Bureau

CLEVELAND, Feb. 15.—Minnesota retailers are offering motorists in that state an opportunity to register protest against a proposed increase from 3 to 4c per gal. in the Minnesota gasoline tax.

A bitter fight, led by the Minnesota Petroleum Retailers Conference which is sponsoring petitions to be signed at stations, is expected to be carried on by opponents of the tax increase. Minnesota gasoline tax dropped from 4c to 3c on Sept. 1 of this year when a 1c emergency levy expired.

"We are in this thing up to our neck and propose to stay in the fight until the final gong ends the last round," declared Harry K. Franklin, executive

secretary of the retailers group. "I have always believed that the retail dealer has not only a duty to help the public on these matters of excessive taxation, but a direct responsibility to help the public," he added.

Fight Tax Increase

Many Minnesota retailers have posted signs declaring "Stop Gas Tax Increase, Sign Petition Here". The retailers conference petitions propose that the Minnesota legislature set up an interim committee to make a comprehensive study of road needs and financing. This committee, the conference contends, could furnish the next legislature with data on which to establish policies regarding the total amount needed for maintenance and improvement of roads.

"Minnesota no longer should decide when and where to build highways on guesswork or political pressure," the petition adds. After petitions are signed they will be presented to legislators by the conference.

Meanwhile, hearings have been held on one of the several bills introduced into the Minnesota House proposing the increase. No action by House committee has been reported as yet.

2 Pennsylvania Congressmen Back 2c Federal Fuel Levy

N. P. N. News Bureau

WASHINGTON, Feb. 17.—Fuel oil consumers will pay more than $400,000,000 annually in taxes, if Congress enacts a 2c per gal. levy proposed in the Boland-Flannery bill (HR-6, HR-1019), according to 1940 figures compiled by Bureau of Mines.

Introduced by Reps. Boland and Flannery, Pa., measure which is believed to have support of coal people, is now pending before House Ways and Means Committee.

Bill provides for amendment of Internal Revenue code by inserting new section after section 3415 of sub-chapter of a chapter 29, as follows: "Sec. 3416, tax on fuel oli.

Tax Bill Outlined

"(A) There is hereby imposed on the sale of fuel oil to any person for use by such person for the generation of heat or power but not for use as fuel for an internal combustion engine a tax of 2c a gal. to be paid by the seller thereof.

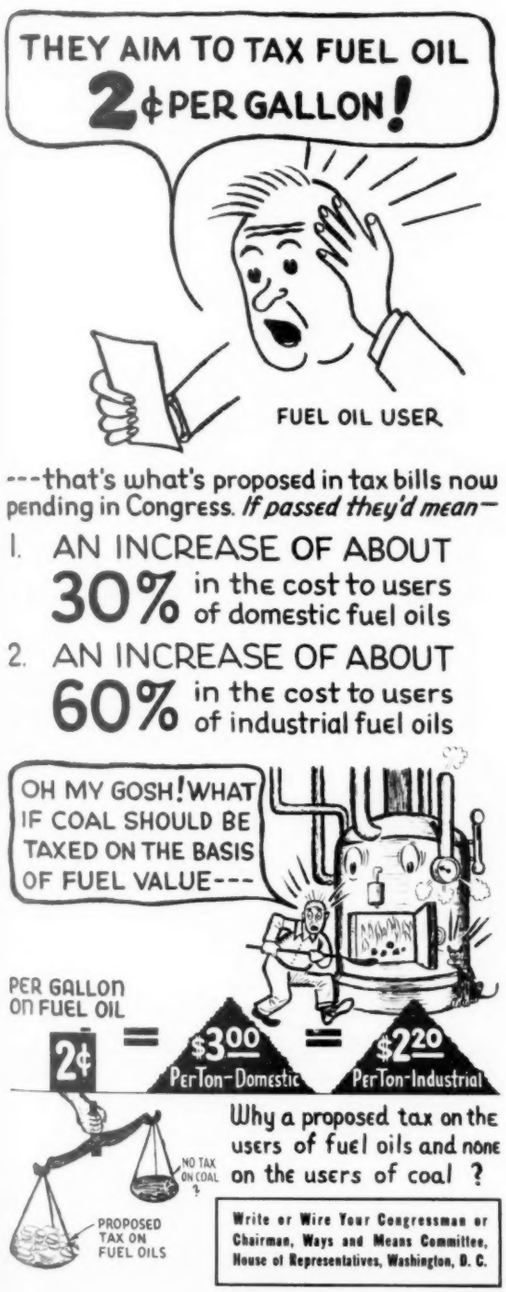
"(B) As used in this section, the term "Fuel Oil" includes crude petroleum and any derivative thereof suitable for use as a fuel, but does not include kerosine, gasoline, benzol, benzene, naphtha or gas oil.

"(C) The provisions of section 3452 (relating to termination of taxes) shall not apply to the tax imposed by this section.

"(D) Notwithstanding the provisions of section 3443 (A) (3) (relating to credits and refunds of tax) no credit or refund provided for therein shall be made with respect to fuel oil as defined in this section unless the tax imposed under this section was paid with respect to such fuel oil."

Sec. 2. The rate of tax imposed under section 3422 (C) (4) of the Internal Revenue code on imported petroleum and fuel oil derived from petroleum shall be 1½c per gal. in lieu of one-half cent per gal., but the rate prescribed in this section shall not apply to crude petroleum imported for refining purposes.

Chicago Group Hits Proposed 2c Fuel Tax


THEY AIM TO TAX FUEL OIL
2¢ PER GALLON!
FUEL OIL USER
---that's what's proposed in tax bills now pending in Congress. If passed they'd mean—
1. AN INCREASE OF ABOUT 30% in the cost to users of domestic fuel oils
2. AN INCREASE OF ABOUT 60% in the cost to users of industrial fuel oils
OH MY GOSH! WHAT IF COAL SHOULD BE TAXED ON THE BASIS OF FUEL VALUE---
PER GALLON ON FUEL OIL
2¢
=
$3.00 PerTon-Domestic
=
$2.20 PerTon-Industrial
NO TAX ON COAL
PROPOSED TAX ON FUEL OILS
Why a proposed tax on the users of fuel oils and none on the users of coal ?
Write or Wire Your Congressman or Chairman, Ways and Means Committee, House of Representatives, Washington, D. C.

N. P. N. News Bureau

CHICAGO, Feb. 17.—Burning Oil Distributors Assn. of Chicago has fired its initial broadside in the fight against the proposed 2c per gal. federal levy on fuel oil.

The association has a printed mailing piece pointing out to consumers that the proposed federal levy would mean an increase of 30% in the cost to users of domestic fuel oils, and an increase of about 60% to industrial fuel users. A placard showing the same copy, has also been designed by the group for window display.

"We have always been active in combatting attempts to impose a tax on fuel oil," declared F. B. Caldwell, secretary of the Chicago burning oil association. "Joint action of distributors throughout the country is credited with having contributed largely to the defeat of a fuel oil tax measure in 1939," he said.

"Prior to 1939, distributors in the Chicago metropolitan area filed joint protests to other proposals to tax fuel oil," Mr. Caldwell said. "They intend," he added, "to take similar action in connection with the present fuel oil tax proposal, and to make extensive use of the circulars (see cut), and believe that similar action should be taken in other fuel oil distributing markets."

Texas Proration Hearing To Be Held Feb. 24

Special to N.P.N.

AUSTIN, Feb. 15.—Railroad Commission Feb. 14 mailed notices of State-wide oil hearing here Feb. 24. Current proration orders do not expire until April 1 but hearing called because of commission policy of granting no allowable changes unless they are presented at state-wide hearing.

Several petitions have sought emergency changes in various wells or fields but commission has declined to take action. In House Taxation Committee hearing Thursday night, section of bill calling for 1% tax on new autos went unopposed. Committee will take no action on tax bills until O'Daniel transaction tax and oil and gas tax hearings finish Feb. 26.

O'Daniel Supports 56,000-lb. Law

AUSTIN, Feb. 18.—When Texas' Gov. O'Daniel sent word to House today that he was "for it 100%," the 56,000 truck load law gained unexpected support. Previously, the governor had supported and urged passage of flat 14,000-lb. truck law. Vote was expected later today.

NDAC 'Price Ceiling' Does Not Affect Oil

WASHINGTON, Feb. 18.—Defense Commissioner Leon Henderson has established system of maximum prices for essential defense commodities, but defense officials say they cannot now foresee its application to petroleum products.

In announcing setting of maximum prices for machine tools, Commissioner Henderson said move was designed to prevent profiteering, adding that second-hand tools in some cases have been selling for higher prices than new tools. No price ceiling has been established on new tools.

Defense commission officials said the Henderson plan was intended to apply to a few items affected by unusual price increases, and that no suggestion had been heard regarding its application to petroleum products.

New State Board of Oil Men Proposed by Wisconsin Group

Special to N. P. N.

MILWAUKEE, Feb. 14.—Proposed legislation to establish a Wisconsin petroleum board composed of oil men for administration of laws affecting both the industry and the public will be studied by a committee appointed by Wisconsin Petroleum Assn. at its annual convention here, Feb. 11-13.

Registration at this year's convention exceeded any in the previous 25 years, said Roy L. Brecke, executive secretary.

Committee members who will study proposal to establish a state petroleum board to administer oil laws are William R. Pate, Milwaukee, president of Pate Oil Co.; Elmer Pedley, Kenosha, D. B. Pedley & Son; and Harry A. Rhode, Milwaukee, Great Lakes Petroleum Co.

'Better Protection' Seen

Explaining the purpose of the proposed board, Mr. Rhode said:

"Our desire is to set up a board to administer the state statutes to give the state and the public better protection through expert personnel. The laws governing the industry are not now badly administered.

"However, handling of gasoline and other petroleum products is one of the hazards to the public, and it is believed men trained in the industry can best serve the public, not only in inspection, but in attaining a greater degree of safety and protection of public property."

Mr. Rhode was emphatic in stating that no dissatisfaction existed with the present administration of state oil laws. Purpose of the new board of oil men, he said, would enable greater efficiency at less cost to the state.

6 Resolutions Passed

Resolutions passed by the Wisconsin jobbers included one to reduce truck license fees. Present Wisconsin truck license fees are generally higher than in Minnesota and surrounding states.

Other resolutions scored diversion of highway taxes and another recommends that tank truck capacity limit remain at 2000 gals. State of Wisconsin will be asked to pay cost of bonding distributors of petroleum products for payment of gasoline tax.

In another resolution, the association is seeking a 2% collection fee for collection of the gasoline taxes, in that "Wisconsin has repeatedly admitted that the oil jobbers are the best tax collectors of any of their agencies, and at no expense to the state, but at the expense of the oil jobbers . . ."

Another resolution advocated a reduction in state gasoline taxes of 1c to correspond with 3c gasoline taxes in surrounding states of Michigan, Illinois, Minnesota and Iowa.

Ott Is Re-elected

Norman H. Ott, Milwaukee, sales manager, Pate Oil Co., was re-elected president. Wilson Delzell, Stevens Point was re-elected vice-president and Julius Seiy, Cudahy, Lake Shore Oil Co., former director, was elected secretary and treasurer and Roy L. Brecke, Milwaukee was re-elected executive secretary.

New directors elected are: G. A. Makholm, Rhinelander, Lake Region Oil Co. and J. G. Peterson, Waukesha, Valley View Oil Co. Other directors re-elected and serving a second term are: Emil Wallmann, Milwaukee, Milwaukee Badger Oil Co.; George Buth, Appleton, Buth Oil Co.; James Spindler, Manitowoc, Spindler Co.; Dale Andrews, Kaukauna, Andrews Oil Co.; and A. J. Fiore, Madison, Fiore Coal & Oil Co.

At the banquet, Wednesday night, a capacity audience heard District Attorney Herbert J. Steffes, Milwaukee, speak on oil enforcement. Vic MacKenzie, Indianapolis, national American Legion convention director, spoke about the Legion convention to be held at Milwaukee this September. The association agreed to aid convention legionnaires by making all service stations in the state information centers.

At Wisconsin Convention

Wisconsin Petroleum Assn. members viewing equipment are, left to right: Norman H. Ott, Pate Oil Co.; Harry McGaughey, W. H. Pugh Oil Co.; LaVerne Schaetzel, Schaetzel Oil Co.; and H. O. Stone, H. O. Stone Oil Co.

Iowa Jobbers Announce Convention Program

MANCHESTER, Iowa, Feb. 15.—Complete program for the Iowa Independent Oil Jobbers' Assn. convention, Feb. 26-28, at Des Moines, was announced here today by A. C. Gienapp, secretary. The program follows:

"Lubrication and Engine Development", S. M. McKee, Kansas City, Mo., Nourse Oil Co.; "The Individual Must Become Tax Conscience", G. C. Lloyd, Secretary, Iowa Petroleum Industries Committee, Des Moines; "Oil and the 'Modern Oil' ", (a sound moving picture), A. J. Smith, Calumet Refining Co., Chicago; "The Oil Jobbers' Problems", D. Oty Groce, Groce Independent Oil Co., St. Charles, Mo.; "Tractor Maintenance and Its Importance to the Oil Jobber", A. E. Vallier, Engineer, Ethyl Gasoline Corp., Detroit; "The Gasoline Tax—Its Relationship with Highway Users", George L. Gray, Field Representative National Highway Users Conference, Washington, D. C.

Other papers to be read are: "Casualty Insurance as Applied to the Petroleum Business", D. Wesley Barns, United States Fidelity & Guaranty Co., Des Moines; "What Makes America Succeed", Dr. Charles Copeland Smith, Chicago, Speaking under the auspices of the National Association of Manufacturers; "An Open Forum Discussion by Four Oil Jobbers". A record will be recorded by Station KSO and later broadcast.

Texas Seeks to Redefine Marginal Oil Wells

AUSTIN, Feb. 18. — Texas House Tuesday was asked to redefine marginal wells, whose production is not prorated, to include wells pumped by means of gas lift equipment. Rep. Clayton Bray, Longview, said courts have held that under present status only wells using sucker-rod equipment can be considered marginal.

New England Group Holds '41 Election

Special to N. P. N.

BOSTON, Feb. 15. — Newly-elected officers of the Independent Oil Men's Assn. of New England were announced this week by Clyde Morrill, member of the board of directors. The new officers are:

John W. Scott, Buckley & Scott Utilities, Inc., president; Glenn Arnold, Petroleum Heat & Power Co., vice-president; Paul Strang, Community Service Stations, secretary; and Warren Keith, Keith Oil Co., treasurer.

Members of the board of directors are: Fred Bergfors, Quincy Oil Co.; Mr. Morrill, Fuel Oil Distributors' Council; and John Birmingham, White Fuel Corp.

Members of the executive committee are: Louis Rosenfield, Lincoln Oil Co.; William C. O'Mera, Quincy Oil Co.; Jacob Groman, State Fuel Co.; Henry D. Vander Wyke, Hartol Products Corp.; Floyd Knox, Oil Service Co. of New England; Joseph White, White Fuel Corp.; and James Scanlan, Pennsylvania Oil Co.

To Study Gaging Methods

CLEVELAND, Feb. 17.—Measurement by innage aud outage, measuring apparatus calibration, temperature measurement, and units of measurement are to be studied by the gaging group of the Subcommittee on Sampling and Gaging of Committee D-2 (American Society for Testing Materials). A program of work was outlined at an organization meeting in January.

Suman Elected Head Of Engineers Group

N. P. N. News Bureau

NEW YORK, Feb. 18.—John R. Suman, vice-president of Humble Oil & Refining Co., Houston, was elected president and director of the American Institute of Mining and Metallurgical Engineers it was announced here today at AIME's 154th meeting. Mr. Suman will assume office Feb. 19.

Another oil man, J. Terry Duce, vice-president of California-Arabian Standard Oil Co., was elected a director.

New chairman of the Petroleum Division is Dr. Eugene A. Stevenson, University of Kansas, who succeeds T. V. Moore, who heads Production Research Division of Humble Oil & Refining Co.

WITH THE ASSOCIATIONS

Ratner To Address Oklahoma Oil Group

N. P. N. News Bureau

TULSA, Feb. 17.—Gov. Payne Ratner of Kansas is scheduled as featured speaker at Petroleum Accountants Society of Oklahoma's "Executive Night" program in Tulsa Feb. 27.

"Executive Night" is held yearly by the accountants and is designed to honor executives of the 73 oil companies represented by the society's membership. In addition to oil company executives, other distinguished civic and business leaders have been invited to the affair.

"This is the one real opportunity we have each year to sell ourselves, our society and our profession to the executives of our companies," F. T. Anderson, society secretary said in announcing the meeting.

"We have not been able as yet to definitely determine the exact subject of the address to be given by the Kansas governor, but we understand it will be built around the idea of state's rights, threat of federal control and centralization of authority," President Norman C. Cross of Tulsa announced.

Since the guest speaker for the affair is a Kansan, the Petroleum Accountants Assn. of Kansas has been invited to participate in the program.

"The Tulsans Male Chorus" will provide entertainment.

Venezuelan Imports Hit by I.P.A.A. Head

OKLAHOMA CITY, Feb. 17.—After one year of operations under the Venezuelan trade agreement, whereby certain quantities of crude are imported into the U. S. at a reduced tariff, it is obvious that this particular agreement has not resulted in any beneficial exchange of business, according to a statement here today by Frank Buttram, president of Independent Petroleum Assn. of America.

"The trade agreement with Venezuela has now been in effect for more than a year," Mr. Buttram said, "but figures for 1940 show that despite this agreement, the value of our total exports to Venezuela in 1940 increased only 12% over 1939 while the increase to all other South American countries was 37%."

"On the same basis," he continued, "the total value of our imports from Venezuela during the year following this trade agreement increased 76% over the preceding year and the increase in imports from all other South American countries was only 20%." His statement continues:

"We have opened our domestic markets to Venezuelan goods, primarily petroleum, to a far greater extent than in the case of all other South American countries, but our domestic industries which shipped to Venezuela have benefited to a far less extent than have those industries shipping to all other South American countries. Obviously, of course, there are many factors other than trade agreements which influence this trade, but it appears to be equally obvious that this particular agreement has not resulted in a beneficial exchange."

Name Rice Chairman Of A.P.I. Committee

NEW YORK, Feb. 17.—Appointment of F. E. Rice, Bartlesville, Okla. Phillips Petroleum Co., as chairman of the 1941 Central Committee on Measuring, Sampling and Testing Natural Gas and Natural Gasoline of American Petroleum Institute's Division of Production, was announced last week by C. A. Young, secretary of the division. George P. Bunn, also of Phillips Petroleum, is vice-chairman, and Mr. Young is secretary. Members of the committee are:

M. J. Adams, The Texas Co., Fort Worth, Tex.; W. W. Baker, Sinclair Prairie Oil Co., Tulsa; B. R. Carney, Shell Oil Co., Inc., Tulsa; J. J. Conry, Carter Oil Co., Tulsa; J. B. Garner, Hope Natural Gas Co., Pittsburgh; R. D. Gibbs, Union Oil Co. of California, Los Angeles; R. Greenslade, Gulf Oil Corp., Tulsa; R. D. Hanley, Magnolia Petroleum Co., Dallas; R. H. Hargrove, United Gas Public Service Co., Houston; M. W. Kibre, General Petroleum Corp. of California, Los Angeles; and Alois Kremser, Standard Oil Co. of California, San Francisco.

Also, Dr. E. R. Lederer, formerly with Bradford Oil Refining Co., Bradford, Pa.; W. F. Lowe, Natural Gasoline Assn. of America, Tulsa; H. M. Manley, Barnsdall Oil Co., Tulsa; W. H. Meier, Atlantic Refining Co., Dallas; Ray E. Miller, Hanlon-Buchanan, Inc., Tulsa; William Moeller, Jr., Southern California Gas Co., Los Angeles; G. G. Oberfell, Phillips Petroleum Co., Bartlesville; E. L. Peck, Cities Service Oil Co., Bartlesville; E. F. Schmidt, Lone Star Gas Co., Dallas; F. M. Seibert, Gulf Oil Corp., Houston; J. O. Sue, Humble Oil & Refining Co., Houston; M. B. Sweeney, Sun Oil Co., Dallas; M. E. Wagner, The Ohio Oil Co., Tulsa; P. G. Weidner, Stanolind Oil & Gas Co., Tulsa; and Frank Wells, Pacific Gas & Electric Co., San Francisco.

Pennsylvania Dealers Elect 1941 Officers

PITTSBURGH, Feb. 15.—Officers of Pennsylvania Petroleum Dealers Assn. for 1941 are:

John H. Donahue, Pittsburgh, 1306 Highland Bldg., president; Benjamin L. Jacoby, Philadelphia, 1807 Fairmont Ave., first vice-president; Ralph L. Moyer, Reading, 13th and Windsor Sts., second vice-president; James F. Murphy, Bradford, 10 Elm St., treasurer; and Frank H. Ellis, Pittsburgh, 1306 Highland Bldg., secretary.

These men were elected at a meeting held Jan. 16 at Pittsburgh's Penn Harris hotel, announces Secretary Ellis.

Oklahoma Compact Extension Ready for Phillips to Sign

OKLAHOMA CITY, Feb. 17.—While Oklahoma's House was putting its approval on H. B. 54 extending the 0.125c per bbl. excise tax on oil to finance Oklahoma's participation in the Interstate Oil Compact and its conservation program, Gov. Phillips had before him a bill calling for two-year extension of Oklahoma's membership in the compact.

Since Gov. Phillips is chairman of the oil compact group, it is reported just a matter of routine before his signature will renew the memberhip.

MEETINGS

Pennsylvania

CLEVELAND, Feb. 17. — Annual meeting of Pennsylvania Grade Crude Oil Assn. will be held June 19-20 at Bradford, Pa., announces W. W. Dunlop, secretary.

* * *

Connecticut

HARTFORD, Feb. 10. — Anual convention of Connecticut Petroleum Industries Committee will be held Feb. 27 at the Bond Hotel here, announces G. L. Benedict, Jr., state secretary.

General convention committee, headed by Russell L. Patterson, Torrington, as chairman, includes Seth W. Darley, Middletown, Gulf Oil Corp.; A. J. Bernard, Norwich, Ideal Service Stations, Inc.; J. Christoph, Hartford, Socony-Vacuum Oil Co. Inc.; Sherwood Wilmont, Bridgeport, Epco, Inc.; and J. L. McIntyre, Hartford, Laurel Oil Co., Inc.

* * *

North Texas

WICHITA FALLS, Tex., Feb. 15.—Date of the annual meeting of North Texas Oil & Gas Assn. has been changed from Feb. 22 to March 1, announces D. G. Gray, executive vice-president.

* * *

Southwest A.P.I.

SHREVEPORT, La., Feb. 17.—Papers covering a wide range of subjects related to oil and gas production are scheduled to be read at the annual spring meeting of American Petroleum Institute's southwestern district division of production, announces L. A. Ogden, chairman. Meeting will be held Feb. 27-28 in the Washington-Youree hotel, at Shreveport, La.

Seek Crude Rate Cut From Nebraska

N. P. N. News Bureau

TULSA, Feb. 15.—Western Trunk Line Committee has before it a proposal for a rate of 46.6c a bbl. for crude from Falls City, Nebr., to Milan, Ill. Present rate is $1.429 per bbl.

Milan is in the Illinois oil field.

Recycling Due to 'Level Off' Late in 1941, Kaye Predicts

Special to N. P. N.

KILGORE, Tex., Feb. 15. — Petroleum's new recycling industry has about absorbed its present backlog of potential and economic sources of supply for raw products in Texas and Louisiana and beginning some time late in 1941 output of "condensate" and products is expected to "level off", Emby Kaye, Tulsa, vice-president of Distillate Engineering & Processes Co., told almost 100 refiners, natural gasoline manufacturers and technologists attending the technical meeting of Western Petroleum Refiners Assn. here this week.

Sponsored by the Ark-La-Tex Division of W.P.R.A., Mr. Kaye was invited down to present a background picture of the technical and economic side of recycling. The products of recycling plants are sold either as a substitute for crude or as finished products.

Texas and Louisiana condensate production from recycling plants "as of late in 1941 will represent only about 3% of total crude production in those states," the technologist said, adding that volume of condensate and its effect on oil markets had been over-emphasized.

The products of recycling plants must be sold currently from day to day, Mr. Kaye said, and operating costs at these plants are such that the products can be sold competitively with those from refineries. He explained that cost of raw products processed at recycling plants fluctuated with return from the plant's output, whereas refiners pay a fixed price for their crude.

Most recycling plant operators, according to the technologist's interpretation, prefer to market their products through pipeline channels even with the certainty they might obtain a somewhat better realization through sale of their output as finished motor fuel. Therefore, the marketing trend at present is toward pipeline outlets, where the raw condensate from the plant is dumped into nearby crude pipelines, he said.

Finished motor fuel is turned out at relatively few recycling plants at present, according to the speaker, and the net realization from such operation is substantially the same as received when the condensate is sold as crude to the pipelines.

Nebraska Output is 2550 Bbls., Discovery Bounty Still Unpaid

N. P. N. News Bureau

TULSA, Feb. 17. — Recognizing the advantages of oil development within its boundaries, Nebraska's unicameral legislature a few years ago offered a $15,000 bounty to the producer of the state's first commercial oil well.

The drilling looked good in Nebraska—so did the bounty—so the Guinn Brothers of Texas tried their luck in Section 20 by sinking their No. 1 Boice well down to a depth of 2282 feet. The Hunton lime at that depth gave them a producer with initial daily flow of about 150 bbls. of 32.5 gravity oil. But to qualify as the state's first "commercial well," a well would have to produce a minimum of 50 bbls. daily consecutively for 60 days. The first quarter of the period passed, with the Boice well averaging 150 bbls. daily, but on the 18th day producing conditions made it necessary for the Guinn Brothers to shut the well in.

Another try at Falls City—the No. 1 Bucholz well—brought in another Hunton lime well 7 months later with about the same daily output as the Boice well. The well held up for the 60 days required by the state and the Guinns were in line for the bounty. But somewhere along the line, the legislature had failed to make appropriations for the $15,000 bounty and the Guinn Brothers have yet to receive the reward. The legislature now in session is expected to back its word up with the missing appropriation.

With 36 wells drilled in Richardson county, the state is now considering advisability of levying a 2% severance tax on Nebraska-produced oil to cover administration of the law and to bolster the state school funds.

The U. S. Bureau of Mines recognized Nebraska's place in the supply picture several months ago when it forecast a 2000-bbl. daily demand for the oil. At present the state is overproducing this figure by about 550 bbls. daily.

The past winter, Nebraska producers consulted Almanacs and long-range weather predictions to bolster their hopes for a long-cold winter. For a severe winter would sustain demand for their heating oil-type crude. So far they've expressed disappointment over the anticipated increase. Their period of heavy demand has passed, they say. Now they must wait the return of fall and winter, because theirs is a seasonal crude. The gasoline content of the oil does not compare favorably with gasoline-type crudes and therefore processing of Nebraska oil declines during the spring and summer.

Nebraska producers have found in the two nearby refineries—the Mid-States Refining Co.'s plant at Falls City and the Nebraska Producing & Refining Co.'s refinery at Salem, Neb. — insufficient outlet for their output. The combined capacity of the two local refineries is only about 4000 bbls. daily but runs have fluctuated, they say.

The Searle Petroleum Co.'s 500-bbl. skimming plant at Omaha and the two 2000-bbl. skimming plants at the Twin Cities furnish additional outlets for the oil. The Twin Cities plants, however, do not obtain all their requirements from Nebraska.

The field's two gathering systems operated by a Bell Oil & Gas Co. subsidiary and the Independent Pipe Line Co., assemble crude from the field and deliver it to nearby railroad sidings for re-shipment to out-of-state refineries. Bell posts an 80c a bbl. price for the oil f.o.b. tank cars at nearest siding, while the at-the-well price is 5c less.

Truck operations play an important part in distributing the crude. The oil has been trucked down as far as Kansas City, where it is used as heating and industrial fuel. While this has been called a "logical market" for Nebraska oil, competition from low gravity crudes shipped from nearby Kansas fields precludes development of Kansas City as an important market outlet.

When the field was most active, some consideration was given to barging Nebraska oil up and down the Missouri and Mississippi rivers. Ideal terminal sites are to be found within 12 miles of the field on the Missouri river. Such a barging plan would have necessitated the construction of storage at origin and destination and it was believed at that time developments did not warrant such an outlay. Uncertain shipping conditions on the Missouri hamper barge shipments from Falls City at this time, according to reports. The big water reservoir farther up the river that was to have made the stream navigable in dry months collapsed and while thousands of dollars have been spent to improve the channel, the fact remains that there is insufficient water to float a barge during most of the shipping season. The reservoir at the headwaters of the Missouri may be rebuilt, in which case barge deliveries could be made if such shipments were warranted.

Active development in and around Falls City has been hampered considerably by the limited demand for such a "seasonable" crude, by current failure to obtain production in deeper strata than the Hunton lime.

Nebraska producers frankly are worried by encroachment of water in some of their wells. The field's approximately 2500 bbls. of oil is being produced, it is said, mostly from a few key wells not now threatened by water. Field reports substantiate this and indicate approximately 90% of the field's output is being produced from 15 of the 30 wells. Production from 10 of the wells is reported negligible due to water encroachment.

There is no talk of state conservation in Nebraska, although conditions may necessitate unitization of parts of the field with consequent voluntary proration among operators in the unit.

While the Falls City area represents the most active part of the Nebraska-Iowa-Missouri territory, exploratory interest is still maintained in other sections of the tri-state area. Little evidence of large oil reserves in this area have come to light so far.

Nebraska producers are hopeful that an estimated 10% hike in residual fuel demand brought about by increased industrial and national defense activity may serve to eliminate one of the above factors said to be hampering further development in this area.

Consolidated to Get Venezuelan Oil

NEW YORK, Feb. 17.—Discovery of the first oil well in the State of Monagas, Venezuela, by the Venezuela Petroleum Co. was announced last week by its parent company, Consolidated Oil Corp. The new well, flowing at a rate of 4000 bbls. daily on its first test, is located on a lease of 25,000 acres near the Jusepin field and has been named Santa Barbara No. 1. The discovery has been acclaimed by Consolidated Oil as "the most important development for many years."

Southwestern Crude Tighter, Buyers Seek Gulf Coast Oil

(*Continued from page* 7)

lost to Illinois when production in that state reached a peak of 518,000 bbls. daily, has supplied an outlet for much of the Southwest's "homeless" oil, it is reported.

Crude Sources Tighten

At present, crudes of the desired quality and those available from sources nearest to refinery destinations have tightened to the extent that buyers are combing the outskirts for their requirements, reaching into areas where transportation differentials materially increase the laid-down cost at refinery.

Stanolind Pipe Line Co. is scheduled, beginning about April 1, to transport approximately 7000 bbls. of crude from certain Gulf Coastal fields through North Texas, Oklahoma, and Kansas and up to its mid-western refineries. Ability to obtain necessary crude reserves nearer operating bases would preclude the necessity of purchases in such out-of-the-way places, most observers believe.

New 20,000 Bbl. Refinery

Just last week, an inquiry for 35,000 bbls. of crude daily, to be supplied a mid-western refiner, was circulated in the Southwest. Approximately 20,000 bbls. of the total daily contract was to have supplied requirements of a new 20,000-bbl. refinery planned by the refiner in the Chicago or Detroit area. By the end of the week, it was indicated the inquiry probably could not be supplied from Kansas, Oklahoma, North or West Texas.

It was found, according to reports, that the order for crude could not be supplied from Kansas without more pipeline extensions and development. Oklahoma was also checked off the list as potential supplier of the oil. Virtually all of Oklahoma's daily output of approximately 400,000 bbls. is spoken for at present. The state's oil wells are reported "producing just about at capacity" and there is said to be little chance of any substantial increase in output to supply new demand unless new fields are discovered to bolster present output.

Eleven of the state's fields were placed in the unprorated or stripper well class last month, indicating their inability to make allowed production. At present the state's stripper wells are producing almost half of Oklahoma's total output, or about 186,671 bbls. daily.

While certain North Texas fields have potential output to care for the 35,000-bbl. order, conservation or repressuring programs have been inaugurated in many of these fields. It is not likely producers will junk those programs to supply this demand for crude.

So, some observers have concluded that Texas coastal fields could best supply the mid-western refiner's contract. But South Texas is a long way from the mid-western refining center and transportation factors cropped up for consideration.

The possibility of transporting the crude by tankers from the Gulf to the East Coast was studied, but this was ruled out because at present there are no facilities available to pipe this crude overland from the eastern seaboard to its mid-western destination. Thus, prospects for a new 20,000-bbl. refinery operated on Mid-Continent crude were dimmed.

Integrated oil companies may be expected, it is said, to obtain more and more of their crude oil requirements from Texas, leaving independent refiners to scramble for any available crude near their refineries. While there may be some pipeline extensions and exchanges of crude during this adjustment period, it is believed in some quarters that present pipeline facilities leading from Texas north are sufficient to care for the shifting of supply sources to the Lone Star state.

Look for Crude Hike

In a statement issued last week by Humble's Mr. Weiss, he indicates that if the anticipated demand for crude is realized "there ought to be some improvement in crude and product prices from the present abnormally low levels."

Producers, for the most part, agree with Mr. Weiss. In some circles however, it is believed that a re-alignment of crude prices may be expected first. Southwestern producing states are spotted with areas where differentials exist in prices between crudes of comparable quality and equally available to markets.

There is an air of expectancy among producers as they enumerate the numerous evidences of an increasing demand for crude this spring.

Oil Industry is Co-operating Arnold Tells TNEC Committee

N. P. N. News Bureau

WASHINGTON, Feb. 13. — Temporary National Economic (Monopoly) Committee, meeting to receive Justice Department recommendations, heard Assistant Attorney General Thurman Arnold this week state that the oil industry has been co-operating in both the national defense and anti-trust programs, despite the Justice Department's anti-trust suit against American Petroleum Institute, Ethyl Gasoline Corp., 22 major oil companies, and their alleged affiliates.

"Oil industry, to its credit, has been co-operating in both defense and anti-trust enforcement programs, despite pendency of the big oil suit," Arnold declared, adding that the "price of oil has dropped since the suit was filed."

Mr. Arnold's statement was in reply to Treasury Economic Committee Member Joseph O'Connell, who asked whether industry has failed to co-operate in the defense program because the anti-trust laws have not been relaxed. No direct reference to oil appeared in Mr. Arnold's prepared statement setting forth Justice Department's recommendations, beyond an observation made during discussion of the need for attacking restraints of trade on the necessities of life in which Arnold said, "I believe that our activities have prevented price increases in potash, nitrogen and oil."

A mention of oil also appeared in a Justice memorandum which said resale price maintenance contracts have been widely used in the gasoline industry, in urging repeal of the Miller-Tydings Resale Price Maintenance Act.

Says Act Is 'Cloak'

Prepared by Corwin Edwards, Justice Department economist, memorandum was submitted to committee by Mr. Arnold, who made the charge Miller-Tydings has become "a cloak for many conspiracies in restraints of trade which go far beyond the limits established in the (Miller-Tydings) amendment."

Memorandum itself contended repeal of Miller-Tydings would restore competition in retailing and destroy unlawful monopolies and restraints of trade which now use statute as a pretext for their existence, but at the same time, would not strengthen chain stores against independents, and in fact, might have the opposite effect.

Justice Department recommendations as presented to economic committee by Mr. Arnold, call first for substantially increased appropriations to finance an enlarged program of anti-trust enforcement, including an immediate attack on the problem of eliminating restraints of trade upon production of materials for the defense program and upon the production and distribution of such necessities of life as housing, food, clothing and drugs.

Second, a long-range program of anti-trust enforcement which Arnold described as an extension of his immediate enforcement drive and which contemplates moving against restraints of trade on an industry-by-industry basis in such fields as clothing, household appliances, electrical devices, chemicals, metals —both ferrous and non-ferrous —and shipbuilding.

Legislative Program

Third, a legislative program to include a new law authorizing anti-trust division to proceed against local restraints of trade affecting government purchasing, repeal of Miller-Tydings Act, raising of maximum fines in Sherman act criminal cases from $5000 to $50,000, and elimination of interstate trade barriers.

Other Justice Department recommendations provide for federal registration of corporation mergers involving more than 50% of the production of an industry, and enlargement of the Federal Trade Commission's authority to act as master in chancery to relieve federal courts in long anti-trust trials, together with enactment of the patent law reforms proposed in economic committee's preliminary report transmitted to the President July 14, 1939, and of the O'Mahoney bill of last session (S-2179) providing additional civil penalties for violations of anti-trust laws. (See NPN, July 19, 1939.)

Federal Oil Legislation Needed, Says Ickes

N. P. N. News Bureau

WASHINGTON, Feb. 15.—Interior Secretary Ickes told his press conference this week that nation still has plenty of oil reserves, but that present rate of depletion cannot go on forever.

Every year makes it more important that no waste be permitted, the secretary continued, declaring that is the reason some form of federal oil control legislation is needed. "States are not taking care of the situation," he said, adding "California is still running hog wild and so is Illinois."

Mr. Ickes' statement answered question of reporter, who asked whether, in view of the Bureau of Mines report of a 7% production increase, oil is not being taken out of the ground too fast, and whether this constitutes a threat to the nation's reserves.

Tanker Rates Drop 40c Bbl. After Soaring to 80c High

N. P. N. News Bureau

NEW YORK, Feb. 17.—Running counter to usual heating-season trends, the cost of transporting No. 2 fuel oil by water from the Gulf to Atlantic Coast ports has decreased 50% in a series of reductions over the past six weeks. From a high of 80c per bbl. in early January, coastwise tanker rates for No. 2 fuel leveled off at 40c last week, approximately 32c below rates prevailing at this time last year.

"Dirty" coastwise rates have also shown a reduction, dropping from 59c to 46c for 30 gravity or lighter crude; 66c to 50c for 10-19.9 gravity fuel. Some boat men now say, however, that they are unable to repeat 50c for Bunker "C" fuel on new business.

This unusual decline in "clean" rates, coming in the middle of the heating oil season and in face of nearly normal winter weather, according to a Degree Day basis, is attributed by most sources in the tanker trade to lack of demand for tonnage. However, U. S. Maritime Commission's flat statement last month that rates "are not expected" to go as high during February and March as they were in December (80c for No. 2 fuel), was mentioned by a few tanker brokers, whose only comment was that assertions of this type generally tend to make buyers more "bearish."

Whether or not the federal government is negotiating directly with boat owners in an effort to keep rates down could not be learned, although talk of the existence of a "tanker committee," formed for this purpose in Washington, is heard frequently in the trade.

Backing their claim that demand for tonnage is light, boat men point out that stocks of distillate fuels on the East Coast so far this season have remained from 4,000,000 to nearly 7,000,000 bbls. above stocks during the same period last season, and that as a result, fewer "clean" fixtures have been made on the open market. According to available figures, 6 "clean" boats were chartered on the open market for Gulf-N. Hatteras during January this year; 14 during January last year, when rates steadily moved upward to reach a seasonal high of 72c for No. 2 fuel the following month.

Firmer Rates Seen

Several factors indicate that rates may show new strength in the near future, according to reports. First is that, following the first "break" in "clean" rates, the market has held fairly firm, dropping only a few cents, and that "dirty" bottoms are not available at last-paid rates.

Second, off-shore demand for American-flag tonnage is said to be good. Business is offered from California to Manila and from Ecuador to Vancouver and in other runs, that owners are reported hesitating to accept, possibly anticipating higher coastwise rates.

Another, and increasingly important factor, is the demand for tankers in the molasses trade. More tankers are reported under period charter for this business than in previous years, with indications pointing to still further chartering. Molasses is used as a base for smokeless gunpowder, and the manufacture of munitions has been stepped up considerably, causing a demand for bottoms to haul molasses in coastwise runs.

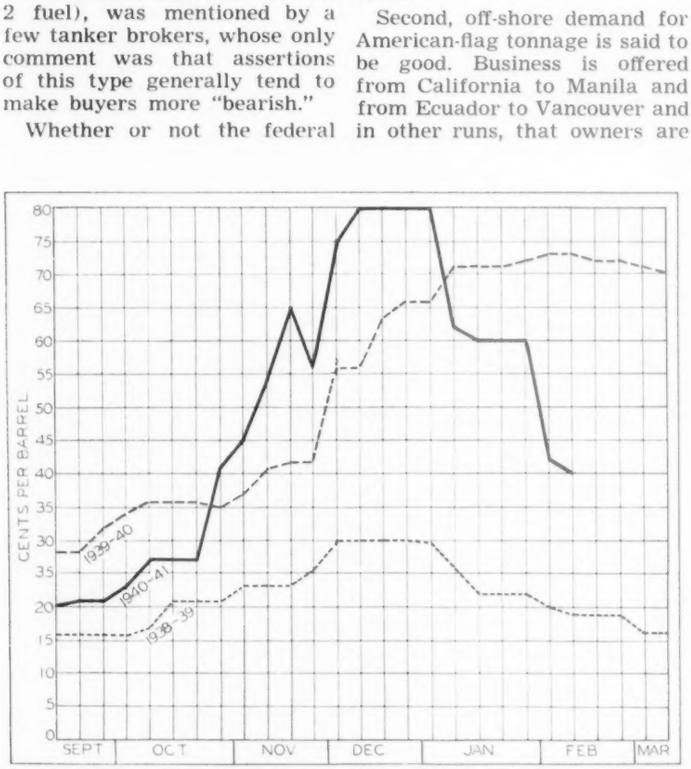


Chart shows trend of tanker rates for No. 2 fuel oil from the Gulf to the East Coast during the current and the past two heating oil seasons. Rates in 1940-41 season soared to an all-time high of 80c per bbl. in December and January of this year, but have since dropped to 40c per bbl.

Pipeline Rate Order Delayed to April 23

N. P. N. News Bureau

WASHINGTON, Feb. 13. — Interstate Commerce Commission has extended from Feb. 23 to April 23 final date on which pipeline company respondents in its reduced pipeline rates and gathering charges investigation, ICC Docket 26570, may show cause why ICC should not proceed to establish lower rates based on an 8% return on investment, and a minimum tender not in excess of 10,000 bbls. (See N.P.N., Jan. 8.)

Respondent pipeline companies recently petitioned ICC for an extension of the original 60-day period in which to show cause, to an April date left to discretion of Commission.

Canada Bans Exports Of Oil Equipment

Special to N. P. N.

OTTAWA, Feb. 15.—Exportation from Canada of petroleum and gas well equipment and parts (including well drilling machinery and parts), and petroleum refining machinery and parts, has been prohibited as of Feb. 12 by the dominion government.

This order is designed to keep oil equipment from reaching the enemy. United States has taken similar action. (NPN, Feb. 12, p. 13).

Canadian Government has also prohibited the export, except under license, as of Feb. 3, of aviation gasoline, aviation lubricating oil, tetraethyl lead, petroleum coke, toluol, equipment for the production of the foregoing and oil storage tanks.

Resolution of Gulf Coastal Refiners Appeals for Relief from Tanker Rates

N. P. N. News Bureau

TULSA, Feb. 17.—Gulf Coast Refiners Assn. today released text of a resolution appealing to the U. S. Maritime Commission and other government agencies to "assert all means at their command to obtain permanent relief from exorbitant tanker rates which prevail on petroleum products from the Gulf Coast area of Texas and Louisiana to points north of Cape Hatteras . . ."

"Tanker rates during recent months have fluctuated within a range of 2 or 3 times the normal rate," the resolution points out. "While these rates have remained at such high levels, the petroleum industry has been recognized as one which is vital to national defense; and it has become a recognized fact that increased demands will be made upon the petroleum industry to furnish increasing quantities of materials vital to national defense, such as gasoline, fuel oil, etc."

Exports Greatly Reduced

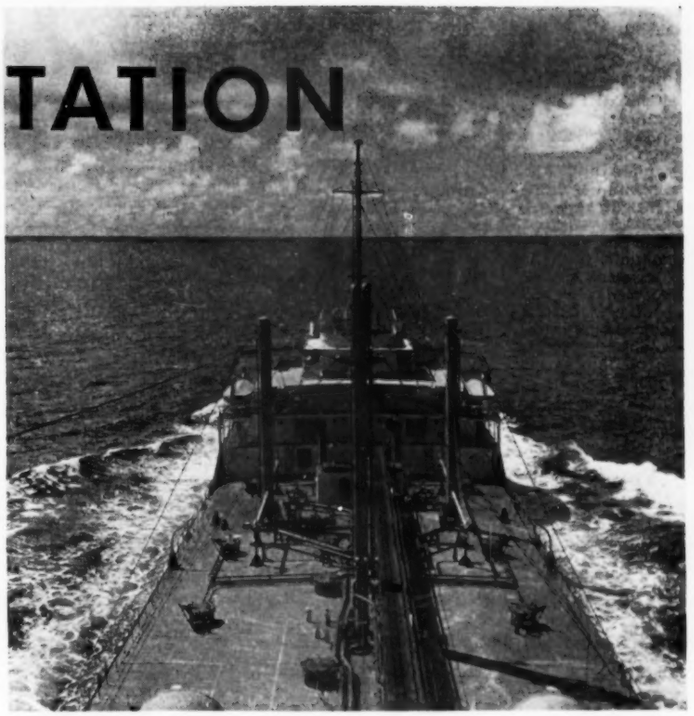
"In recent years independent refiners, such as members of this association, have exported a considerable volume of their products to foreign buyers; but due to war conditions and laws of the United States, foreign markets have, from a practical standpoint, been reduced drastically. Turning to the domestic market, the independent refiners of the Gulf Coast area are confronted with tanker rates at such levels that the domestic market has suffered a drastic reduction because importers of foreign crude who refine petroleum on the eastern seaboard enjoy so great an advantage in tanker rates. Gulf Coast refiners, using Gulf Coast crude, must sell in competition with companies including importers enjoying a tremendous advantage in transportation costs."

The independent refiner group contends the "government should adopt policies which will not permit the scarcity of ships to cause such high rates, if a scarcity of ships is responsible for such high rates." With expanding national defense needs for petroleum, it is further contended that "it should be made possible for the independent refiners to stay in business in order that their facilities remain intact and in operation to meet this anticipated increased demand."

Favors Tanker Legislation

The association went on record as favoring, if necessary, "appropriate legislation to authorize regulation of coastwise tanker rates, or to authorize use of available foreign owned vessels, at least to the extent of supplying ships for coastwise tonnage when it is contended that exorbitant rates are necessary because of war conditions or temporary scarcity."

OIL TRANSPORTATION



Lea's House Committee Will Study Ways To Remedy Pipeline Construction Delay

N. P. N. News Bureau

WASHINGTON, Feb. 14.—Three developments have come as a result of President Roosevelt's letter urging that House Oil Investigating group headed by Rep. Cole, seek a solution for delays retarding construction of two gasoline pipeline projects, in the southeast, which Chief Executive deemed important to national defense. (See NPN, Feb. 12).

House Interstate and Foreign Commerce Committee Chairman Lea, in a prepared statement, said that he, in answering the President's letter, had advised Mr. Roosevelt the question would be given consideration by his committee to determine what legislative remedy might be enacted to meet the situation. Any legislation Congress might enact probably would require interstate pipeline companies to secure certificates of convenience and necessity from some federal agency before they could condemn rights-of-way, Congressman Lea added.

Secretary Ickes told his press conference that Interior Department, after determining pipeline facilities connecting the Mid-Continent field with the eastern seaboard would be insufficient in an emergency, has recommended consideration, at least, be given new pipeline from Middle West to the Atlantic seaboard. Department made no recommendation as to who should construct pipeline, Secretary Ickes said. The reporter had asked whether the government itself wants to build pipeline from Louisiana to Norfolk, Va., or leave that to private industry.

House oil investigating subcommittee reported Chairman Cole as having definitely decided to make a personal survey of gasoline pipeline situation in the southeastern states, before returning to Washington, March 1. Mr. Cole is now in Florida recuperating from a recent illness.

Chairman Lea, in his statement, reported that in reply to the President's letter he had said "our committee will endeavor to give consideration to the question with a view of determining what, if any, legislative remedy was available to meet the situation.

"At the present time interstate gasoline pipelines can be constructed without consent of the federal government," Congressman Lea continued. "In order to construct such lines the pipeline companies must, of course, secure such consent as may be required under the laws of the states affected. The federal government could, by proper legislation, grant permission for the construction of interstate pipe lines to serve as common carriers and authorize condemnation suits in furtherance of such purpose.

"If such procedure should conform to the general regulatory practice of the federal government, the pipeline companies would be required to secure certificate of convenience and necessity from the authorized regulatory body. Before such a certificate was granted it would be necessary to make a showing before such federal agency to establish the need of such a pipe line from the standpoint of public interest.

"Such a federal statute could, and probably would, grant to the pipe line carrier the right to bring condemnation proceedings to acquire the right of way for such lines.

"I take is as improbable that the federal government would grant the legal right to the construction of interstate pipe lines without giving some regulatory federal agency the right to decide whether or not the circumstances showed a need and justification from the standpoint of public interests for such lines," the statement said.

"Due consideration will be given to the question of need from the standpoint of national defense and would, of course, be a proper matter for consideration by the regulatory body in deciding whether a certificate should be granted.

"If this problem or the present controversy, is brought to our committee we will go into the matter thoroughly to learn whether or not federal legislation is necessary and desirable, and, no doubt, propose that legislation that we find appropriate," Chairman Lea's statement concluded.

FDR Seeks Approval For 'Defense' Roads

N. P. N. News Bureau

WASHINGTON, Feb. 15.—Recommendations for congressional appropriations totaling $287,000,000 for immediate defense highway construction and the planning of post-emergency highway improvements are contained in a special Public Roads Administration report submitted to President Roosevelt by Federal Works Administrator John M. Carmody. Recommendations of the report follow:

1. Appropriation of $150,000,000 for immediate construction of access roads to serve military and naval reservations and defense industries.

2. Appropriation of $100,000,000 for immediate strengthening of certain weak sections of the national highway system designated by the War and Navy Departments as the "strategic network."

3. Appropriation of $25,000,000 for construction and repair of special tactical roads designated by the War Department.

4. Appropriation of $12,000,000 for advance planning of post-emergency improvements.

ICC Calendar On Oil Trucking

HEARINGS

Rogers Cartage Co., Chicago, Ill. (MC 64932, sub. 4) March 4, Chicago, on application to extend operations as a contract carrier of gasoline, fuel oil, petroleum and kindred products in tank trucks, in Illinois and Indiana between Robinson, Lawrenceville, and West Kankakee, Ill. and points located in Indiana, over irregular routes.

L. O. Tucker, Vernon, Tex. (MC 96338) March 3, Dallas, on application for certificate to operate as a common carrier of oil field equipment between Vernon, Texas and points located in Texas within 200 miles thereof and points located in the States of Oklahoma, New Mexico and Louisiana, over irregular routes.

DECISIONS

Walter L. Boyd, doing business as Boyd Transportation Co., Boise, Idaho, (MC 33608, sub. 3). Issuance of permit approved, upon compliance by applicant with certain conditions, to operate as a contract carrier of liquid petroleum products in tank trucks, from Attalia and Vancouver, Wash., and The Dalles, Umatilla, Portland, Willbridge, and Linnton, Oreg., to points in Idaho, over irregular routes.

Hugh M. Tawney, Bryan, Ohio, (MC 95228, sub. 1). Issuance of certificate approved, upon compliance by applicant with certain conditions, to operate as a common carrier of fuel oil, in bulk, in tank trucks, from points in Michigan to points in Ohio, over irregular routes.

Loraine Transfer Co., Shrevepore, La. (MC 1288). Issuance of certificate approved, upon compliance by applicant with certain conditions, to continue operations as a common carrier of oil field equipment between points in Louisiana, Texas and Arkansas, over irregular routes.

Dominic Machise, doing business as Machise Express Co., Hammonton, N. J. (MC 42343). Application to operate as a common carrier of liquid petroleum products, in tank trucks, from Marcus Hook and

Philadelphia, Pa., to certain points in New Jersey, over irregular routes, denied.

RATE PETITION

Central States Motor Freight Bureau (Ex Parte MC 21) Proposal No. 141. Reduction in existing rate from St. Louis, Mo., of 36c to Milwaukee and 35c to Racine, Wis., minimum weight 20,000 lbs. to meet identical rail rate of 28c, minimum carload weight 30,000 lbs., applicable to petroleum and petroleum products, including compounded oils or greases having a petroleum base, Proposal No. 149. Rate of 15c per 100 lbs. from Chicago to Earlville and Somonauk, Ill., minimum weight 20,000 lbs., applicable to petroleum or petroleum preparations, including petroleum jelly, benzene, prepared gasoline, naphtha, crude oil subject to natural weathering, fuel residual and distillate lubricating grease, paraffine wax or petroleum wax.

G.C.R.A. 'Gas' Stocks Down 2328 Barrels

HOUSTON, Feb. 17.—Gasoline stocks of eight refiners reporting operations to the Gulf Coast Refiners Assn, were reduced 2328 bbls. during the last half of January, to 1,944,148 bbls., according to G.C.R.A. report.

Of gasoline stocks on hand Feb. 1, aviation fuel totaled 473,604 bbls., an increase of 50,608 bbls.; 1,415,580 was motor fuel, down 52,561 bbls.; and the remaining 54,964 bbls. was naphtha, down 375 bbls.

Crude runs were up 1031 bbls. daily average the last half of January, to 58,734 bbls. or 57.6% of operating capacity.

Reporting refiners liquidated the 35,829 bbls. of No. 5 fuel oil stock on hand Jan. 15 and drew 222,536 bbls. of Bunker "C" fuel from storage, leaving only 288,325 bbls. on hand Feb. 1. Diesel fuel and gas oil stocks increased the last half of January, while kerosine and other types of gas oils were reduced.

Humble Refining Plan Large Recycling Plant

HOUSTON, Feb. 17.—H. C. Weiss, president of Humble Oil & Refining Co. in his statement to Humble stockholders last week gave first official confirmation that a large recycling plant was being considered for the Katy field of Harris County, near Houston. The plant would be constructed jointly by Humble and other producers in the field.

While Mr. Weiss gave no indications as to size or cost of the plant, field reports indicate its capacity may exceed that of the so-called largest recycling plant at Cotton Valley. The Cotton Valley plant, when completed early this spring, will have an output of from 10,000 to 12,000 bbls. of products daily, it is said.

Station Employes In Midwest Leave for Defense-type Jobs

(*Continued from page* 7)

official said, who will fall below these averages, because of the chaotic price structure and intense competitive conditions existing in this area. I know of some non-union service stations helpers who receive from $14 to $17 a week, and some operators who are lucky to net $30 a week."

While still on the subject of metropolitan Chicago, another representative added: "There is little wonder why these men are drifting to defense plants. These men are following the course of fewer hours, little responsibility, and better pay—from what they are receiving at the service station."

The Steel Workers Organizing Committee here told NATIONAL PETROLEUM NEWS that the minimum wage for an unskilled steel worker was $5 a day, or 82½c an hour, while skilled steel workers earn from $5 to $17 a day. Steel workers in this area (South Chicago, Gary, and Hammond, Ind.) are on a 5 consecutive working day schedule—totaling a 40-hour week, the CIO official added.

15% of Stations Affected

One major oil company official reported that approximately 15% of their 1000 lessee operators had been affected by the lure of better wages in various industrial plants, combined with the loss of men called by the National Guard and Naval Reserve units.

These lessee operators have been replaced, he said, but with difficulty. The lessees who left gave ample notice, and none of the stations have been forced to remain idle, he added.

One chain of 40 cut-price stations in Chicago has been forced to replace a man in each of their stations on the average of every 6 weeks.

This marketer reported that so far he had been able to replace all the men he had "lost", but expected conditions to get more acute in metropolitan Chicago when the draft gets under "full steam" this summer. "However," this marketer added, "in the spring, many schools will release employable men to help fill in any losses in drive-way men." He stated that their men worked at the union scale, plus commissions, with drive-way men averaging $100 a month, and service stations managers averaging $125 to $140 per month.

Six Lessees Leave

Another marketer reports that: "6 of our lessee operators turned the key in the doors of their stations and walked out last week." These men, he added, however, have already been replaced.

Another Mid-Western marketer operating over 100 company-owned-and-operated stations as well as supplying lessee stations, in this area, lost 9 lessees in the past few months, but these men have been satisfactorily replaced. A company official said about 15 service station helpers in company owned stations had been drafted. "This drift of employes to industrial plants is not as noticeable 75 miles west of the Mississippi river, because there are few large manufacturing concerns in this area", he added.

Central Illinois Not Hit

A marketer in central Illinois said that they had not experienced much of this drift of employes into industrial plants that are working on defense preparations. "We are out of the range of appeal of large industrial plants," he explained, "and so far we have had about 3 of our men leave us, but these men were draftees." In contrast, he pointed out that marketers in and around Rockford (in northern Illinois) had been affected because of construction work at Camp Grant, and the lure of plants in Chicago area.

One refiner reports that its jobbers are finding it more difficult to keep service station helpers. "In some competitive areas, the turnover is unusually high," he said.

'Real Problem' In Spring

Another Chicago major oil company official stated, "conditions are far worse here than in Ohio. We have noticed a decided drift of our service station men to jobs elsewhere. The draft hasn't hurt us much so far—but wait until spring when both of these elements get under way—then we're going to have a real problem".

Detroit, Mich.; South Bend, Ind.; St. Louis, Mo.; and Kansas City, Mo., are also experiencing similar conditions, according to reports from these areas. A personnel man for a Midwestern oil company commented that "formerly we never had to advertise for men, because they came to us—but now—we run many classified ads—and get an occasional "good lessee prospect".

Another said, "We've advertised for lessee operators for 6 months—had 81 replies, and gotten only a couple of good prospects".

While virtually all marketers contacted agreed that the problem of obtaining good men was becoming acute because of the increase in employment in other industries, none of them admitted that they have lowered their standards for new employes. However, while they prefer young men, reports were that older men will be accepted. They stress sales personality and honesty in men they hire.

Using Bonus Plan

One large company is using a bonus plan to help keep their men on the job. This company said it told the men that the defense boom is merely a temporary situation, urging their men to "stay on the job" and build a steady business that will last. The company has devised a bonus plan, in which reasonable quotas are set up for each operator, and sales over these quotas bring a bonus for station employes.

An official of this company said he had found that a colored washer who generally turned out 15 to 18 cars daily, nearly doubled his output when given the incentive of this plan. This same company official said he had lost "a few men to industrial plants", but had replaced them fairly easily, although he recognized that it was becoming increasingly difficult to obtain good men.

Better Conditions Seen

Two officials of retailers organizations report that the problem of the drift of station men into other industries will force improvement of working conditions of employes.

One official, who operates his own station in Illinois, said that while he has lost only one man so far, many other stations are losing their men. "In coping with this situation of defense industries luring men from service stations," he stated, "we must strive to improve the working conditions and pay of our service stations. Along this line *all* of the service stations managers are going to have a meeting soon, and decide on shorter hours for our men."

Natural 'Gas' Production Down in December

N. P. N. News Bureau

WASHINGTON, Feb. 12.—Production of natural gasoline decreased in December, 1940, Bureau of Mines reports. Daily average in December was 6,706,000 gals., compared with 6,777,000 gals. in November, with chief declines occurring in the East Texas, Texas Gulf, and Oklahoma City districts. Production for the year (2,320,458,000 gals.) was an increase of 151,158,000 gals. or 7% over the total for 1939.

FUEL OIL BUYING HABITS

'Free Service' and Prices Are Minor Factors In Customer's Choice of Fuel Oil Supplier, According to Survey of Over 1300 Consumers

SATISFACTORY service, friendship and reputation of the company are the leading factors in the choice of a heating oil supplier, according to results of a survey of Metropolitan Boston by the Fuel Oil Distributors Council of that city. Price and product were found to be lesser considerations.

Originally, the survey was to analyze reaction to inducements offered to purchasers by fuel oil suppliers, especially servicing arrangements. In collecting data on service, the Boston fuel oil group, which is directed by Clyde G. Morrill, amassed considerable data on the buying habits and preferences of consumers. These factors of interest to marketers are analyzed in this article.

Survey was conducted by a well-known research firm by means of personal interviews. Interviews were conducted by graduate students at the Harvard School of Business.

Much preparatory work was done so that the survey would completely cover all important points on fuel oil used in central-heating systems for homes. Sample interviews were taken to see how many would be necessary to give an accurate cross-section of opinion among householders in Boston and 24 of its suburbs. It was found that 1350 representative questionnaires would be ample. Percentages became stabilized at this number, additional returns making no substantial change in the tabulations. Necessity of proportional distribution among geograpical areas set the exact number at 1369 to completely satisfy the needs of the survey. Actually, 2000 questionnaires were completed, but contradictions were ruled out.

Two factors—convenience and dependability—are foremost in the consumers' minds when they consider oil heating, according to the council's analysis of data developed in the survey.

"When the typical consumer buys an oil burner for his own use he chooses a particular make because he believes it is superior to competitive makes, based on his own judgment, the advice of others, or the reputation of its manufacturer", the Council states.

"He selects an oil company recommended by friends whose experience has been satisfactory, or the company from which he bought the burner and in which therefore he has confidence, or a company from which he has bought other products.

"He prefers to continue buying oil from a particular supplier because he finds the firm dependable and generally satisfactory. He signs an annual contract because it disposes of the question of price and of the responsibility for maintaining his supply."

Policies of oil marketers on consumer relations, the Council adds, "should, therefore, be considered primarily in terms of their net effect on the convenience and dependability of oil heat".

The survey indicated that 80.5% of the fuel oil users in the Boston area own their own homes; that 83.2% of the homes are 1 family dwellings, and that 75.2% of the consumers are in homes that have a monthly rental value ranging from $25 to $75.

In the typical home visited in the survey, oil is used to heat 8 rooms. The average consumption of oil indicated is 2100 gals. a year; 54.8% of all burners 2 to 5 years old.

Choice of Supplier

In giving their reasons why they preferred to buy from their present supplier of fuel oil, 41.4% of the consumers listed: "Have found them satisfactory." Closely allied with this, was the 18.6% who answered, "Reputation of the firm."

The fact that 23.6% of the consumers replying to this question answered, "friendly with someone in the firm", indicates the importance of friendship, and the indifference to any specific advantages of trading with one company compared with another.

On this point, the Council states "we

Delivering fuel oil to a suburban Boston home. In the typical Boston home 8 rooms are heated with oil, and 76% have a rental value ranging between $25 and $75 per month

found that friendship with someone in the firm was a strong factor governing the choice of an oil supplier. This friend could equally well be the representative of a large or small company.

TABLE 1

"Why do you prefer to buy from this firm?"

	% of consumers interviewed
Have found them satisfactory	41.4%
Friendly with someone in the firm	23.6%
Reputation of the firm	18.6%
Service to burner (Those who indicate any form of service, free or otherwise, or any one or more of the services specified below)	12.1%
1—Contract covering maintenance of burner	5.2%
2—Burner cleaned and adjusted without charge	4.9%*
3—Burner repaired without charge	2.5%
4—Burner and heating system cleaned and serviced wiithout charge	2.1%
5—Worn parts replaced at cost	.4%
6—Worn parts replaced without charge	.1%
Drivers are careful and courteous	10.7%
Company installed the burner	6.7%
Oil is better	6.6%
Local dealer	4.6%
Contract protects against rising prices	4.4%
Prompt delivery service	4.3%
Oil costs less	3.6%
Business reasons	3.1%
Credit terms	2.3%
Landlord's preference	1.6%
Co-operative buying	1.0%
Other reasons	4.2%
No opinion	2.7%

Note: In this and some following tables, consumers gave more than one reason in answering the interviewer. All reasons are classified separately.

*Includes all consumers who indicated that free service was a factor in their preference.

Only 3.6% of the consumers interviewed gave the fact that the oil was cheaper as the reason for buying from their supplier, while only 6.6% said they believed the "oil is better" than that of other companies.

That product and price are not vital factors in determining consumer preference for fuel oil suppliers is due, according to Council's comment, to the fact that consumers feel that the products offered and prices quoted are all about the same, comments the Council.

Fuel oil marketer's truck driver and burner service mechanic is the company's contact with customers. His appearance, conduct and efficiency are important factors. This is shown by the fact that 10.7% of the consumers listed "drivers were careful and courteous" as their reason for purchasing.

Answering the question, "Why did you decide to buy oil from your present supplier?", 36.7% of the consumers replied, "Recommended by friends or relatives," (Table 2.)

The large proportion of consumers interviewed giving this reason indicates that the most important sales representatives of an oil marketer are its satisfied customers. "This suggests definite possibilities

Clyde G. Morrill, director of the Fuel Oil Distributors' Council of Boston

for sales promotion and indicates that a mose effective method of obtaining new customers lies in stimulating enthusiasms among the present customers," the Council states.

The purchase of a new burner governed the choice of oil supplier in 13.2% of the cases. "This would seem to prove the advantage to tying up with a popular make of oil burner, either by becoming or associating with a sales agency", the Council comments.

The loyalty of fuel oil consumers to the company from which they have purchased coal or coke, and preference for other products of the same oil company, such as gasoline and motor oil, also are factors in governing the sale of oil to consumers, according to Table 2.

TABLE 2

"Why did you decide to buy oil from your present supplier?"

	% of consumers interviewed
Recommended by friends or relatives	36.7%
Signed an oil contract when burner was bought	13.2%
Bought coal or coke from this firm	9.9%
A salesman from the firm	9.8%
Recommended by firm that sold the burner	9.4%
Use other products made by this firm	4.5%
Free burner service offered	4.5%
Previous firm was unsatisfactory	4.3%
Local concern	4.1%
Business reasons	3.5%
Other reasons	15.6%
No opinion	7.5%

Prefer Independent Marketers

Majority of the consumers interviewed, 60.3% in fact, indicated they had no preference as to buying from a refiner or distributor of fuel oil. Among those expressing a preference, there were slightly more favoring independent marketers. Preference for the local dealer, however, was strongest in the suburban areas.

On this the Council adds: "In the smaller outlying suburbs there is a distinct preference for the local independent dealer, based partly on an abstract feeling of a community spirit and partly on business reciprocity. For example, one resident of a small suburb had this to say: 'We buy from the X Oil Co. because of reciprocal trade. I'm not interested in the quality of their oil. I'm just interested in the fact that they trade in my husband's store. Once I had some cleaning done by an out-of-town company and the local cleaners complained about it the next time my husband attended a board of trade meeting."

TABLE 3

"Would you rather buy from a firm that makes fuel oil or from an independent dealer distributing fuel oil?"

	% of consumers interviewed
Manufacturer	17.1%
Dealer	19.2%
No difference	60.3%
No opinion	3.4%

Table 4 indicates that many fuel oil consumers have continued to purchase from the same supplier since they started using fuel oil.

Of the consumers heating with oil from 6 to 10 years, 49.5% have purchased from their present supplier continuously. Fifty-five per cent of those using oil for 5 years have traded with the same supplier, while 72.8% of the consumers heating with oil for 3 years have been buying from their same supplier during that time.

Among Boston fuel oil customers contacted, 71.7% received a stamped slip from the driver showing the number of gallons of oil delivered. Table 5 indicates that most of the customers who receive such a serv-

TABLE 4

How long consumers buy from the same supplier.

The following table compares the number of years consumers have been heating their homes with oil with the number of years they have been buying oil from their present supplier. The table indicates the percentage of those consumers who have been heating with oil for the number of years shown in the horizontal index who have been buying from their present supplier for the number of years shown in the vertical index.

Number of Years of Buying from Present Supplier	1 year or less	2	3	4	5	6-10	11-15
1 or less	100.0%	20.5%	11.5%	12.2%	13.8%	9.5%	11.8%
2	.....	79.5%	15.7%	18.1%	10.8%	11.5%	5.9%
3	.....	.....	72.8%	10.3%	12.3%	11.9%	12.9%
4	.....	.....	.....	59.4%	7.7%	9.5%	7.1%
5	.....	.....	.....	.....	55.4%	8.1%	9.4%
6-10	.....	.....	.....	.....	.....	49.5%	23.5%
11-15	.....	.....	.....	.....	.....	.....	29.4%

ice find it both reassuring and convenient. Too, 25.5% of those who do not receive a delivery ticket indicate they favor such a practice.

"The feeling of those who do not consider the service important," the Council states, "may be summed up in the comment volunteered by several: 'Would not trade with a company I didn't trust'."

Following table shows the percentage of answers to the question of whether consumers consider the stamped delivery ticket slip important.

TABLE 5

"Do you consider stamped delivery ticket important?"

	Consumers Receiving Stamped Slip	Consumers Not Receiving Stamped Slip
Slip important	78.9%	25.5%
Slip not important	19.5%	56.0%
No opinion	1.6%	18.5%

80.6% Under Contract

Extent of top-price fuel oil contracts is shown by the fact brought out in the survey that 80.6% of all consumers in the metropolitan Boston area contract for their winter supply of oil.

Most consumers buy their oil on contract because they want protection against the possibility of increased prices, according to Table 6. To a lesser degree, they sign contracts in order to transfer responsibility to the supplier for maintaining an adequate supply of oil, and obtain servicing for the burner.

TABLE 6

"Do you have a contract for your winter's supply of fuel oil? If YES, for what reasons?

	% of all who have contract
Price predetermined	67.7%
Contract saves money	15.3%
Sure of supply at all times	12.9%
Better delivery service	12.2%
Burner service	10.3%
Contract signed when burner was bought	4.7%
Contract is convenient	3.2%
*Other reasons	11.9%
No opinion	5.2%

*Includes such reasons as "company sends them out," "helps the salesman" etc.

TABLE 7

"Do you have a contract for your winter's supply of fuel oil? If NO, for what reasons?"

	% of all who do not have contract
Prefer not to be obligated	29.9%
Contracts of no value	20.3%
Don't like contracts	13.8%
Never been asked to sign contract	8.4%
Company has no contracts	6.1%
Prices may go down	4.2%
Service may not be satisfactory	3.8%
Other reasons	16.5%
No opinion	22.2%

Most of those who do not buy on contract feel that the value of the protection or service offered (See Table 7) is not worth the independence sacrificed and are distrustful of contracts generally. The Council comments "a state of mind rather than any specific objection is responsible".

Studies Burner Service

Service competition takes the form of maintaining and repairing burners and heating equipment at prices not based on the cost of the service rendered, but designed to promote the sale of oil, from the profits on which the costs of service are then deducted, states the Council.

"Since no oil company can afford to give something for nothing indefinitely, it would seem wise to consider how much supplementary service any substantial number of consumers expect and to hesitate before exceeding that point. Discrimination cannot be maintained for long in a competitive industry dealing directly with consumers."

Slightly more than half, or 54% of all consumers are receiving supplementary service of some kind from their oil suppliers. (See Table 8.) Most of those receiving such service have the burner cleaned and adjusted—"in the majority of cases without charge", reports the Council.

Half of those who receive service have the burner repaired. Practically all, however, who have parts installed by the oil company pay for the parts.

TABLE 8

"Does the firm from which you buy oil render you any service other than putting oil in the tank? If yes, does this service include:

	% of those who receive service	% of consumers interviewed
1. Cleaning and adjusting burner	88.4%	47.7%
a. Service charge	29.1%	15.7%
b. No charge	59.3%	32.0%
2. Repairing burner	48.3%	26.1%
a. Service charge	25.3%	13.7%
b. No charge	23.0%	12.4%
3. Replacing worn parts	37.9%	20.5%
a. Charge for parts	29.3%	15.8%
b. Parts at cost	5.7%	3.1%
c. No charge	2.9%	1.6%
4. Service not specified	5.2%	2.8%

For comparison of data on the problem of burner service costs, the Council made the following analysis of service rendered to those consumers who indicate in Table 1 and Table 2 that they either chose their present supplier because of service offers or prefer to patronize the firm because of such offers. These constitute 12.8% of all consumers interviewed The services rendered them are shown in following Table 9.

TABLE 9

Types of Burner Services Offered Consumers.

	% of those who buy because of service offers
1. Cleaning and adjusting burner	93.3%
a. Service charge	18.4%
b. No charge	74.9%
2. Repairing burner	60.4%
a. Service charge	17.0%
b. No charge	43.4%
3. Replacing worn parts	53.0%
a. Charge for parts	34.6%
b. Parts at cost	9.2%
c. No charge	9.2%

A comparison of Table 8 and 9 indicates to what lengths the oil companies must be prepared to go if they expect to base their sales strategy on service competition of this sort, the Council comments.

The survey brought out that consumer acceptance of oil as fuel was 95.1% satisfactory, and that burners were 91.4% satisfactory. "This," states Mr. Morrill, "makes free service unnecessary so far as the industry is concerned. The pioneering is long since over and the initial reasons for free offers no longer exist. Further, less than 5% of customers buy because of free service offers.

"Further education of the burner owner so that he becomes as familiar with his burner and its maintenance as he has with his car and its maintenance will protect him from much of the unscrupulous parts selling that now supports many ostensible free service offers," added Mr. Morrill. No car owner expects his car to be maintained in return for his gasoline business. It is a comparable situation," he concluded.

The part careful, courteous drivers play in consumers' preference of oil suppliers is brought out in the Boston survey. More than 10% of the consumers said they traded with their present suppliers because of his drivers

Opportunities Are Open in Oil Marketing Fo

(Following is complete text of an address, entitled "The Place of the Independent Marketer in the Oil Industry, by Paul G. Blazer, president of Ashland Refining Co., Ashland, Ky., delivered Feb. 3 at Memphis convention of Tennessee Oil Men's Assn.)

THE PLACE OF THE INDEPENDENT MARKETER IN THE OIL INDUSTRY

The oil industry has done a wonderful job of serving the public, yet it is in serious trouble with the government. It has been under indictment almost continuously since the first Madison case some years ago.

Not all of the industry was indicted in the Madison cases, and only twenty-two major companies and their three hundred and thirty-four subsidiary or affiliated companies and officers are named in the recent monopoly suit, yet, for all practical purposes, the entire industry is a defendant.

Probably those who are prosecuting the suits for the government are conscientious and sincere men who feel that they are only doing their duty as public servants. They have been misled, but it is not surprising that they should fail to understand the oil industry when there is so much misunderstanding within the industry, itself. In my opinion, the principal troubles of the oil industry—both internal and external—have their roots within the industry. The oil industry is too large, too complex, too varying from one locality to another, for any one person to fully understand it.

In discussing certain phases of the industry, I may appear to presume to speak authoritatively, but I should go on record in advance by saying that my views are based only on a limited experience and subject, of course, to those pet prejudices which we all accumulate over a period of years. Also, nothing that I may say should be construed as a personal attack on any one. I believe there are no people of importance associated with our industry whose views or actions are so controversial, but that if one meets and talks with them, their viewpoint appears to have some justification. Right there we touch upon one of the reasons for the troubles of the oil industry. It is so large and varying and complicated that intelligent, fair-minded persons have no difficulty in finding facts which support entirely different conclusions.

The oil industry is not a single business. It is not even just four businesses—production, transportation, refining, and marketing—as so many people like to think. It consists of many different businesses, which overlap into each other with no sharp lines of demarcation. Extending all the way from geophysics methods for detecting oil-bearing formations a mile or more under the surface of the ground to the merchandising of tires along with the sale of gasoline, there is no entirely logical place of separation into component parts. There are thousands of people in this great industry of ours who have less in common with each other than, for example, two men who might be manufacturers of cosmetics and locomotives, respectively. Certain individuals, however, attempt to pass judgment on the whole oil industry—even to the extent of going before Congressional committees and trying to influence legislation which would vitally affect this entire twenty-billion dollar, diversified industry—when those persons posing as experts may have first-hand knowledge concerning only a small segment of the industry and in a limited territory—an intimate knowledge pertaining perhaps to a fraction of one per cent of the industry. It is no wonder there is so much misinformation in high places concerning our business.

The over-all profits for the oil industry are relatively small. Few of the large integrated oil companies have averaged a fair return on their investments over the past ten years. Thus, it is easy to understand why many of those engaged in only a single branch or a small part of the oil industry, should be dissatisfied with their earnings.

Independent producers of crude oil complain constantly concerning crude-oil price levels. I don't blame them. Few of them can operate profitably under present conditions.

Independent refiners not only complain about the prices at which they have to sell their products, but the most of the smaller refiners have substantiated their complaints by going broke.

If we may judge by the amount of grief that has been caused the rest of the industry by the complaints of a small but well organized group of independent jobbers, it would appear that they are having their problems.

Jobber's Rate of Return is Bigger than Majors'

The service-station operators, by far the largest single group in the industry, appear to have made the best of a very difficult situation—possibly because, to the extent that they are organized, they have had excellent leadership.

Only the pipe lines are conceded to have excessive earnings, and the Interstate Commerce Commission, which has jurisdiction, has taken steps recently to bring their returns down to a modest figure. I might mention, though, that the independent operators of crude-oil gathering lines complain that the competitive rates charged by the major oil companies are too low. In fact it is difficult to find a man who doesn't think his branch of the industry is getting a raw deal.

For many years I have been interested in ascertaining the extent to which the large integrated oil companies subsidize their operations in certain branches of the industry at the expense of their earnings in other branches. I have discussed the subject with hundreds of different people representing almost every phase of the industry. Almost invariably the person I am talking to assures me that the particular branch of the industry, in which he is engaged, is being ruined by the competition of the major oil companies which are subsidizing their unfair competition in that branch by drawing on their huge earnings from other branches of their business. Further questioning, however, often discloses that the profits of the person speaking are far larger in proportion to his investment than the overall return on the investments of the large integrated oil companies. I would say that almost invariably that is true in the case of independent marketers.

Of the hundreds of oil jobbers I have known, I do not recall, at this time, a single one who has become bankrupt, but I know of scores of them who have made small fortunes. If a young man with little capital but plenty of energy should come to me for advice concerning going into business for himself, I would advise him to become an oil marketer. One of the best arguments in support of that advice is the fact that the company with which I am associated sold a number of million dollars of petroleum products last year to independent jobbers without losing a

For the Independent Jobber, Says Blazer

dollar on credits. In more than fifteen years of selling to independent jobbers, we have yet to lose pay for the first car of gasoline. That record would not be possible except for the fact that the independent jobbers, in the area where we market the output of our refinery, have always made money.

I have never been able to understand why a group of independent oil jobbers should be the ones who have been most active in trying to bring Federal regulation and control into the oil industry. It is inconceivable to me that a person who believes in free enterprise should go to Washington and ask for federal legislation to curb competition. Such action might be understandable in the case of certain visionaries and impractical theorists, but the oil jobbers, as a group, are aggressive individualists, who would not be in the oil business if they did not believe and practice aggressive competition.

Of course, I understand that those, who are selfishly asking for segregation of marketing from the rest of the industry, are hoping that the federal government will stake off for them a private domain of marketing from which the big companies will have to move out and leave them in charge, but any person who thinks it would work out that way must be very naive. The less we bring the government into our business the better off we will be, for the hand of governmental regulation is heavy on friend and foe alike. We saw that during the NRA. Every time a rule or regulation was passed to correct one of the evils of free competition, ten new inequalities resulted, calling for more rules until the whole structure was breaking down from its own weight, and everybody concerned —especially the little fellows—breathed a sigh of relief when the law was declared unconstitutional. We can not accept help from the government and expect them to stop there. There is an old saying that "the one who pays the fiddler may call the tune." Federal control and regulation may be forced upon us because of our own lack of leadership, but I can't understand why any individual or group should voluntarily ask for such disaster.

I think the large integrated oil companies are due criticism for their failure to assist in developing uniform rules of accounting which would enable them to compute and file separate profit and loss figures covering their operations in the different important branches of their business.

I am not smart enough to know all the forces behind the organized propaganda which aims at breaking up the oil industry into various parts, but I am confident there are interests outside our industry which are glad to make use of a few hundred oil marketers as a "front". The railroads might have something to do with it. At least, this program would fit in with their known efforts to harass pipe line, water, and truck transportation, all of which play such an important part in the oil industry, and which by this proposed legislation would be divorced from oil refining and production. Incidentally, I might mention that the railroads accepted federal regulation to correct their own competitive abuses —and see what has happened to them. Misery loves company.

Two members of the President's cabinet have made the statement recently that they thought the oil industry should not be competitive. Stop and ponder the implications of that thought. Just what would that mean to you and your business?

One of those who believe that the oil industry should not be competitive is Secretary Ickes, a man who holds views with which I am not in accord, but who, as Secretary of the Interior,

Paul G. Blazer

I believe, is entitled to more consideration and co-operation than he has received from the oil industry. He might have a more sympathetic understanding of the oil industry and its problems if we all worked more closely with him and his assistants.

One day Mr. Ickes asked some of us why there should be four service stations on the respective corners of an intersection. I asked him in reply "Who is going to decide which three should move off?"

'Public Relations Neglected by Industry'

One of the greatest faults of our industry is that we are so busy competing with each other and improving our operations so as to serve the public better than our competitors, that we neglect governmental and public relations. I believe that no other important industry does such a poor job of public relations. Maybe there is something about our highly technical, extremely competitive industry which develops a kind of leadership that in the matter of public relations is inarticulate almost to the point of helplessness.

The fact that approximately twenty large integrated companies control 75% or 80% of the petroleum resources of the country constitutes both the strength and the weakness of the oil industry. Bigness makes possible vast expenditures for research and a coordination of manufacturing and distribution facilities which brings gasoline to the public at a cheaper price than either distilled or carbonated water, yet bigness also means vulnerability to attack. Because a few large companies competing desperately with each other dominate the oil industry, both the government and the public appear to overlook the fact that there are also thousands of small business men who have a stake of their own in our industry. The interests of those individual business men—usually referred to as independents—are so closely linked with those of the largest corporations that an attack against one constitutes an equal threat against all. And strange as it may appear to some people, the little fellows, the independents, can do far more to help or hurt this vast industry of ours than the combined personnel of the big companies. That is the reason that a relatively few independent jobbers are able to seriously threaten the entire industry with destructive legislation.

Has it ever occurred to you that in a large corporation having many thousands of employes, usually not more than two or three people have the authority to express their convictions

freely on matters of public interest pertaining to our industry? And all too often those few, who have the authority to speak, fail to do so. Because of that situation, I have the very strong conviction that if this great industry of ours is to avoid serious trouble through governmental encroachment and misunderstanding on the part of the public, it will be only by the combined effort of the so-called independents. Your stake as an independent marketer and mine as the head of a small integrated oil company marketing principally through independent jobbers, may not seem large as compared with the investments of some of those associated with the largest corporations, but our stakes are just as important to us as theirs are to them, and we have just as much responsibility, and probably more opportunity than they, to do our share of the public relations job which our industry needs so badly.

Our industry is on the defensive. We have no quarrels that can not be settled among ourselves without calling in outsiders who might give us more than has been asked for.

A few independent jobbers stirred up those Madison cases which helped no one, but cost the industry millions of dollars and caused embarrassment to many of our leaders who had been conscious of no wrongdoing. A few jobbers and their representatives must assume responsibility for those suits, which did an irreparable and incalculable injury to our industry. Some of the same group are now endeavoring to use the same kind of destructive attack to break up and completely disrupt the nation's most efficient and second largest industry. They and their friends in the government are waging the attack both through the courts and the halls of Congress. There is nothing that either you or I can or should do concerning the new suits that are pending, but we can take action through our congressmen and senators to block the passage of the divorcement legislation which is now before Congress for the third time.

I could go ahead and give you my views as to just how the divorcement bills, if enacted by Congress, would bring into existence large transportation and marketing operations which, in addition to competing with the independent jobbers, would engage as middlemen between the refiners and the independent jobbers. They would own and operate to their own advantage the expensive transportation facilities with which heretofore the refiners, large and small, have served their independent distributors as well as their own marketing departments. These new middlemen would not have the same incentive to serve you economically, as has been done by your present suppliers who have needed your assistance in providing an outlet for their refineries, as well as a market for their crude oil in the form of refined products.

There is always going to be "big business" in the transportation and marketing of petroleum products, and if we try tampering with the natural economies we will wake up to find that we have the government in our industry, and that will be really big business with which none of us can compete.

Of course there are inequalities and inequities in every branch of the oil industry and in every other business, but fortunately the abuses of private enterprise are self-corrective. Just the same as honesty is the best policy, so efficiency crowds out inefficiency. Unfair and extravagant competition destroys itself unless a new regime takes charge before it is too late.

Industry's Ills Are 'Self-Corrected', Says Blazer

I have in mind a large oil company which a few years back was the most extravagant and highest cost marketer in our part of the country. They paid the highest prices for filling-station sites and gave the longest discounts. There was not much they would not do in order to get volume and I presume their management thought that their policies were justified by the acts of their competitors. Apparently, the situation got so bad that they had to do something about it. Since then they have gone almost to the other extreme, and I note their earnings reports have improved correspondingly.

Only a few years ago the most serious criticism of the major oil companies was their unfair competition in the operation of service stations. Marketing costs through their company-operated stations were reported often to be twice as large as the margins they were giving independent dealers. What happened? The competitive situation became so bad they were glad to seize upon the "Iowa Plan" and lease out their stations to individual operators. Today there are so few major company-operated stations that such competition is no longer a problem—at least not in the territory with which I am familiar. Again I remind you that competitive abuses are self-correcting.

I could point to many other corrective changes that have occurred in the twenty-odd years I have been in the oil business. I am sure that we can be just as successful in solving our future problems without outside interference. I suggest only one exception to that thought.

We should give active support to the Interstate Commerce Commission's recently announced intention to make the common carrier pipe lines—both crude oil and gasoline—common carrier in fact as well as in name. The Commission's plan to reduce rates of trunk lines, so as to permit a maximum of 8% return, is a most important and long past due step. This action, together with proposed regulations intended to help small shippers, corrects the situation which constituted the most valid argument for pipe line divorcement. It is interesting, though, that those, who are agitating for divorcement and complaining most bitterly about pipe line abuses, have carefully avoided all effort to make use of the Interstate Commerce Commission, which for twenty-five years or more has had full power to provide relief.

As regards water transportation, which is becoming an increasingly important factor in the oil industry, common and contract carrier barge lines on our inland waterways are quoting low prices to independent jobbers and shipments are accepted in sufficiently small quantities to make their services available to comparatively small independent marketers. I might mention that a few years ago two or three competing independent jobbers in Cincinnati established a co-operative river terminal which has been quite successful. Some large marketers have their own barges transporting gasoline from their refinery suppliers to their own terminals for re-shipment in truck transports direct to service stations which can receive full transports. Such a set-up gives them costs which are as low or lower than the major companies.

I have less fear concerning the future success of the independent marketers than for any other group in the entire oil industry.

'40 'Gas' Pump Sales Increase Over 1939

CLEVELAND—Total dollar value of pumps and pump equipment and repair sales in 1940 was $23,747,140, compared with $23,292,849, in the same 1939 period, according to G. Denny Moore, managing director of Gasoline Pump Manufacturers Assn.

December, 1940, pumps and pump equipment and repair sales were $1,837,806, compared with $1,929,292 for the same month last year, report said.

Gasoline pumps sold during 1940 totaled 104,005, compared with 110,227 in 1939. The 104,005 pumps had an invoice value of $21,197,484, the report stated. Total number of power-operated pumps sold in 1940 was 101,930 and of hand-operated pumps, 2075.

Gasoline, kerosine, oil and grease equipment sales totaled 122,821 units, with value of $1,350,137.

Gasoline pump sales for December totaled 8238, with an invoice value of $1,647,656.45, compared with 8904 in December, 1939, it was reported. Gasoline, kerosine, oil and grease equipment sales for this month were 8628, having an invoice value of $91,373.09. Parts and repairs for the final month in 1940 totaled $98,766.71.

Gulf Awards Employes

In line with its "incentive compensation plan," Gulf Oil Corp. recently distributed a bonus to its employes, representing a week's salary in recognition of their "loyal and faithful services in 1940."

Let U. O. P. save for you

A certain refiner recently found that a poor treating operation was stealing value from his good Dubbscracked gasoline Octane loss was 1.5 to 2 points, doctor regeneration was poor, litharge expense was high The refiner was using more U. O. P. inhibitor than he ought to

That's where the Universal refining specialist came in He found the trouble and prescribed the cure Alert refinery management applied it at once

Octane loss was cut to half a point, induction period was lengthened with the same amount of inhibitor (or less), litharge consumption was reduced almost to zero

Estimated savings per month:

Litharge saving.	$ 800
Increased effectiveness of U. O. P. inhibitor . .	400
Tetraethyl lead saving	2,500
Total monthly savings	$3,700

This refinery makes about 100,000 barrels of gasoline a month

Whether you make more or less than that you ought to have:

1—Dubbscracking and U. O. P. catalytic poly

2—U. O. P. inhibitor

3—The friendly and effective help of Universal's refining specialists

These are always at your service

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

NPN Item about 'The Okie Four' Brings Deluge of 'Inquiries'

This is the letterhead of "The Okie Four" on which Mr. Cash's letter was written. Down the side of the first page runs a long list of functions—such as rodeos, picnics, fox hunts, horseshoe pitching and similar shindigs—at which the Okies will sing—with little provocation

Under the heading, "For Little Money and Less Excuse, Barber Shop Quartet Lets Loose," NPN's Mid-Holiday Cocktail Issue (December 25, carried a humorous announcement of "The Okie Four" quartet, affiliated with the Society for the Preservation and Encouragement of Barber Shop Quartet Singing in America, Inc.

Now it seems that this announcement (which the Okie Four profess to regard as an "advertisement") of their availability for "entertaining" at picnics, barbecues, clam bakes, crap games and the like, has brought in so many inquiries that the quartet has been snowed under and now asks for a shovel to dig out. Their plea, signed by Mr. Cash, together with Editor Platt's reply, are printed below.

The Okie Four, which modestly boasts of its harmonizing abilities on an ornate letterhead (see cut), is made up of W. E. Downing, Tulsa, vice-president of Fourth National Bank; J. Frank Rice, Bartlesville, executive of Cities Service Oil Co.; O. C. Cash, Tulsa, "tax commissioner" for Stanolind Oil & Gas Co. and Fred D. Graves, Tulsa executive of National Supply Co.

Dear Brother Platt:

I have read the advertisement concerning the Okie Four appearing on page 18 of your issue of December 25. I understood this display ad was prepared by Brother John Steiger, your offkey baritone and Tulsa representative.

This advertisement is sort of working in reverse. The Okie Four is now preparing a bill to be submitted to you and the NATIONAL PETROLEUM NEWS and we trust it will be paid promptly upon receipt in Cleveland. The ad certainly got results, as we have been deluged with offers to appear before various groups throughout the United States. The fees which we have been asked to pay for the privilege of appearing on these different programs have run all the way from $5.00 to $1,000 an engagement. In every offer provision has also been made that we pay our own expenses. We have filled a number of these engagements where we have been able to "jew" them down to a price we can afford to pay. However, we have run out of money and since you and your magazine have gotten us all this business, we believe it is only fair that the NATIONAL PETROLEUM NEWS subsidize the quartet, pay all of our expenses in filling these engagements and arrange with these various groups and organizations to underwrite the fees and charges which we are compelled to pay if we continue in the quartet business.

I suggest you work out a plan similar to the Government's AAA program. We have a lot of songs that we could plow under without in any way hurting our repertoire.

At present we are pretty well exhausted and have about reached the end of our respective vocal ropes. Trusting you are the same, I am

Very truly yours,
O. C. Cash

* * *

Dear Singer Cash:

Yours of the 14th—

I don't know whether I want to respond to your appeal as a brother or not. An admission of that sort might perhaps entangle me further in the affairs of the "Okie Four".

I don't know that I would go so far as to call that story in our December 25th issue about your so-called quartet, an ad or not. Perhaps we were only trying to warn the oil industry of a coming cyclone from the dust bowl. The country has been rather free of dust storms for a year now and in view of the gathering noise from Oklahoma, we were afraid that the country might not be aware that this dust storm was from the "Okie Four".

I assure you that all we can do is to warn the populace of the United States about you and your associates. If we were to try to underwrite your so-called quartet and foist it upon the public, I would be fearful of the consequences. We were indicted once for not doing something, but this time we certainly would be open to indictments on all sorts of charges for actually trying to do something which might be considered by more than just a New Dealer, a ravaging of public appreciation of music, perhaps even morals, at all events, fair play.

Of course, if anybody is so foolish as to offer to pay you cash, why then we would be entitled to a commission, but in the meantime, we are trying to inform the world just what this noisesome dust storm from Oklahoma is.

Very truly yours,
W. C. Platt.

England Rations 'Gas'; Cars Still Operate

Although all warring countries in Europe are conserving their gasoline supplies, thousands of private motor cars, formerly thought of as a luxury, are being allowed to operate.

This is reported by American Automobile Assn. which states: "Reports from Great Britain tell us that some 45,000 private passenger cars put away for the duration of the war have been taken out of cold storage and placed in operation, with the government allowing special rations of gasoline on condition that the owners take fellow workers to and from manufacturing plants where they are employed."

However, many motor vehicles are running on coal gas, derived from huge containers atop the roofs. Still other cars operate from carbonized wood carried in a huge hopper. In Germany, many cars are running on compressed gas in tanks, carried at the vehicle's rear.

Oil and Automotive Group To Meet in Los Angeles

LOS ANGELES, Feb. 15.—Seventh annual Petroleum and Equipment Exposition and Convention of Retail Petroleum & Automotive Assn. will be held March 5-7 here at the Elks Temple, announces W. B. Wylie, executive secretary.

Now Ready . . . a NEW Poster to Help You Increase January to April Sales!

Now—a new—entirely different PETROLEUM ENGINEERING BULLETIN has been prepared to give your selling forces entirely NEW FACTS for that January to April sales drive. NPN is now issuing its PETROLEUM ENGINEERING BULLETIN No. 2—carrying new engineering facts, entirely different ideas and illustrations printed in a different color, to give your sales force NEW TALKING POINTS to use in going after those profitable winter-conditioning jobs.

Your winter Change-Over Campaign is a thing of the past . . . your spring Change-Over Campaign is months away. Yet . . . the cold weather months from January to April present multiplied opportunities for increased sales of lubrication supplies and services. How can you cash in?

You need new selling ideas—new facts to keep the sales enthusiasm of your lubrication selling forces at its highest productive level. NPN has issued a new, entirely different poster—NPN'S PETROLEUM ENGINEERING BULLETIN No. 2—to help you take up the slack between your own campaigns. This new poster carries NEW ENGINEERING FACTS your sales forces can use in TALKING and SELLING profitable winter-conditioning jobs. It gives them new sales ammunition—new selling points—a new sales campaign on which to base their efforts during that January to April sales drive. Here's how you can cash in—

Order a supply of NPN'S PETROLEUM ENGINEERING BULLETIN No. 2—furnish a supply to every station for displaying in lubritoriums and offices—keep copies prominently displayed in your own offices and sales rooms or wherever your selling personnel can see them and use the facts these posters carry. Have them use the selling slogan at the top of these posters in contacting every motorist—then they can use the engineering facts to give authority to their sales talks. Just one fact or sales thought from these posters, used consistently, will more than pay the cost of your supply. Get your order in early—start cashing in during those profit months of January to April!

PRICES FOR
Petroleum Engineering Bulletin No. 2

1 to 25 signs	25c each
26 to 50 signs	23c each
51 to 100 signs	21c each
101 to 500 signs	17c each
501 to 1000 signs	15c each
1001 and up—rates on application	

Remittance must accompany orders for 25 signs or less. Ohio purchasers please add 3% state tax. Signs sent postpaid.

Send for a Sample

Test a Petroleum Engineering Bulletin No. 2 in your office or service station for a day or two. Bulletin specially handled and wrapped in mailing tube, for trial, only 50c each.

NATIONAL PETROLEUM NEWS, F
1213 W. Third St., Cleveland, Ohio

Enclosed is check covering our order below .....

Send us invoice covering our order below .....

Send us ..... Petroleum Engineering Bulletins.

Send us .....special sample posters at 50c each.

Name .....

Company .....

Street Address .....

City and State .....

Oil Marketers Have the Best Chance To Sell Light Bulbs and Servicing

INTEREST created by the advent of Sealed Beam car lighting, and the wide publicity and advertising given to the advantages of this newest in lighting, has resulted in a greater demand for more efficient lighting among owners of older cars. With car owners more conscious of the need for more adequate lights, and with car manufacturers recommending periodical aiming of headlights, complete automobile lighting service is expanding and offers a profitable field of service and parts selling to the oil marketer, his stations and dealers.

Bulb replacement market alone will reach a total of over $20,000,000 annually, according to market studies by different manufacturers, and most logical sale outlet, they say, is through service stations.

One manufacturer estimates that the average car requires the replacement of 4 to 8 bulbs during the year. He estimates that the market in 1941 for bulbs will total 150,000,000 units, with a total sales value of around $22,000,000.

Another manufacturer agreed that the total dollar volume would run around $22,000,000. He estimates that the average car owner will purchase at least 75c worth of bulbs for replacement during the year.

Another manufacturer estimates that the average car owner will spend $1.50 during the year on his car's lighting system—bulbs, headlight aiming, etc.—or a total of around $45,000,000 for the 30,000,000 vehicles operated. This does not include the market for driving or fog lights to provide additional headlighting.

Most manufacturers and some marketers say, however, that it is difficult to determine the potential market to the industry's stations offered by lighting service. They point out that a great majority of the station's customers are in the need of service, including cleaning of reflectors, aiming lights, checking for low voltage and other car services and that the surface of the potential market, so far, has hardly been scratched.

The fact that many motorists today are driving inadequate or faulty head, stop and tail lights, representing potential sources of income for the station providing the complete lighting service, is emphasized in the reports of state inspection bureau (see article in NPN, Feb. 5, 1941, page 30). Analysis of rejections in the first check in 1940 in 9 states requiring motor vehicle inspection shows that 45% of the rejections were because of inadequate lights.

Sealed Beam headlights on the newer cars have set a higher standard of lighting efficiency, so lighting systems of older cars—without Sealed Beam equipment— be kept in top-notch condition. New bulbs, cleaning of reflectors and lenses will improve light output of older car's headlights. Pictured here is station operator demonstrating how older car's light output compares with Sealed Beam headlights

WHILE there is still more to the servicing of the lighting system of an automobile than merely replacing a burned out bulb, the station operator, other ideas to the contrary, does not require a degree in electrical engineering to satisfactorily perform this work on his customers' cars.

Standardization and simplification of the electrical systems has taken car lighting servicing out of the realm of the great unknown, and with simple service manuals provided by manufacturers of lighting equipment, this work can be done by the average, intelligent service station employe.

In a subsequent article, NPN will give brief, but detailed information on what points the station operator must check, and simplified instructions on how it may be done.

Complete lighting service includes the checking of the lighting circuit, checking battery and voltage, inspection and cleaning of reflectors, aiming and focusing headlights, selling and installation of auxiliary lights, and headlight relays.

To provide this lighting service, the station operator must have a few necessary pieces of equipment. The tools outlined here are about the minimum necessary to perform the services which will be outlined in the subsequent article on this subject.

AIMING SCREEN—A screen approximately 10 by 3½ or 4 ft. and 35 ft. of level ground are necessary to properly aim headlights. Manufacturers of lighting equipment sell completely mounted screens for around $5, or unmounted marked cloth for less than $1, or they can be made by the station operator. Equipment for automatically

aiming headlights can be purchased by stations not having 25 ft. of level ground. When using such aiming equipment, it is not necessary to employ the screen. Aiming and testing equipment costs around $150.

REFLECTOR CLEANER—Cleaning compound for cleaning reflectors, and absorbent cotton or prepared cleaning cloths are needed. Lighting equipment manufacturers sell prepared cleaning compounds, or a substitute of lamp black and alcohol may be used.

VOLTMETER AND VOLTAGE ADAPTER—The former is used to check voltage at the battery and the latter is used in connection with the voltmeter to check voltage at the bulb, to determine loss in circuit.

Logical Service for Oil Stations

Service stations are the most logical places for motorists to have lighting services performed. In contrast to garages and car dealers' shops, the service station is open at night—at the time the motorist is most conscious of the need for bulb replacement or more adequate lights.

Also, it is easy for the station emplove to detect burned out bulbs, or unbalanced lights—lights with different candle power—when the customer drives into the station at night. Tail lights and stop lights may be observed when filling gasoline tanks.

Frequent contact with customers gives the service station opportunity to talk and sell benefits of better lighting.

In providing lubrication and other services, the station also has an opportunity to check the lights of customers' cars. Many stations include a routine check of all bulbs at the wash rack or when cars are on the lift.

Many car manufacturers recommend that headlights be aimed every 5000 miles. The station can add this service to be sold in connection with its customer follow-up, and it may be called to the motorists' attention every 5000 miles.

One of the important reasons for providing complete car lighting service by the station is that it can and often does lead to the selling of other items. A thorough check of the lighting system will reveal the need in many instances for a new battery, battery cables, switches and headlight relays. These items can be sold and installed at service stations.

The establishment of complete lighting service in his own, or in dealer stations opens another avenue of profit to the oil marketer. Oil jobbers and distributors may purchase directly from bulb manufacturers for distribution to their own and dealer stations.

Marketer's discount off manufacturers' list prices for bulbs will range between 54 and 62%, depending on dollar volume of the account. Dealer discount will run about 40% from

DELIVERIES KEEP STEP

When General American Does Your Drumming

"DRUMMING BY GENERAL AMERICAN"
—Security and Savings to YOU:

1. SPEED WITH SAFETY. Ample facilities for automatically drumming any shipment, large or small, by fastest, safest, most modern methods.
2. ECONOMY. We can drum direct from tank car—no loss of commodity, no pumping charge; after drums are filled, free storage for 15 days.
3. RELIABILITY. General American's long-standing reputation for dependable custodianship is your assurance.
4. INDEPENDENT OWNERSHIP. Strictest privacy assured on all your orders. We do not buy, sell or refine any liquids.
5. AUTOMATIC FILLING. Latest type equipment insures absolutely accurate measure in every drum.

Rush order? A tank car or trainloads of bulk liquids to be drummed and delivered in a hurry? You can meet the most exacting schedule with General American Drumming Service, and save money while you save time. Strategically located service at Goodhope, La. (New Orleans); Corpus Christi, Texas; Carteret, N. J. (port of New York). Get the facts:

GATX GENERAL AMERICAN

Strategically located to serve you!

GENERAL AMERICAN TANK STORAGE TERMINALS

Goodhope, La. and Westwego, La., (Port of New Orleans)
Corpus Christi, Texas
Carteret, N. J. (Port of New York) Galena Park, Texas (Port of Houston)

A DIVISION OF GENERAL AMERICAN TRANSPORTATION CORPORATION

manufacturers' list. Some manufacturers sell on consignment only, so that no capital need be invested by the jobber in maintaining a stock of bulbs for his outlets. In supplying service kits, aiming screens, relays, reflectors, and lenses, the marketer will gross around 30% profit, according to manufacturers.

Sealed Beam Widens Market

The 5,000,000 cars equipped with Sealed Beam lamps are gradually coming into the market for replacement. This is indicated by the increased sales of these lights by manufacturers.

The sale of Sealed Beam units is especially adaptable to the service station. Only one size and style need be stocked, as all Sealed Beam lamps are interchangeable mechanically, electrically and legally.

Selling of lighting service, at several stations answers the cry for more labor sales, and, although the selling of material in connection with the service will return good profits to the station, it is in the sale of labor that the station has the greatest money making opportunity, points out one marketer providing complete lighting service.

Merchandising Helps Provided

As with all of the items which represent profit opportunities to the service station, the operator must SELL lighting service. It can be sold on the basis of more efficient lighting, and consequently more safety for the customer.

Manufacturers of lighting equipment have developed merchandising stunts and ideas for the marketer to place in the hands of his own and dealer station operators.

One company has developed a Compare-O-Meter, and a Light House containing a Sealed Beam unit connected to a live battery. Operators are instructed to place the cone-shaped light meter in front of the customer's lights, take a reading, and then compare this reading with that of the new Sealed Beam unit. This meter lends itself to showmanship in selling lighting service, and new bulbs, and can be placed in the customer's hands so that he can make the comparison himself.

The same company has brought out a stiff cardboard display card, 6½ by 12½ inches, in which is inserted a mirror, and words "Take a look at a fellow who wants to be a safe driver —Be Safe—Please turn on your lights so we can check them for night driving." This manufacturer recommends that the station operator hand these out to customers while filling the tank, or checking the oil.

Virtually all manufacturers of auxilliary lights have display racks for driving, passing and fog lights to be set up in the station window, driveway, or lubritorium.

All, also have signs indicating the station as place where lighting service is done.

Latest Biography of John D. Rockefeller Is Enlightening in View of Today's Events

With this country facing the question of even possible complete federal control of all business, it should be interesting and of some value to every oil man who likes to study his economic position without bias, to read the latest biography of John D. Rockefeller. It is probably the best balanced biography that has been written of the man who organized and developed one of the greatest aggregations of capital in this country's history.

The biography was written by Allen Nevins, a few months ago. In his foreword, Mr. Nevins said that he had tried to give a fair appraisal of Mr. Rockefeller, and neither a defense nor an indictment. In 2 volumes he has done a thorough job of delving into the turbulent history of the original Standard Oil Co. and of the oil industry, and so far as the writer of this notice can recall of that history Mr. Nevins seemingly has done a good job in printing important points both pro and con regarding Mr. Rockefeller and his conduct in the Standard Oil Co.

The writer of this notice found an Illinois oil jobber this winter who has been reading this biography. That jobber said that he was much interested in the similarity between various periods in the development and growth of the old Standard Oil Co. and conditions and charges and countercharges in the industry today.

Each newcomer to the oil industry is generally unaware of this history. Generally he comes into the industry when times are good. That is what has attracted him and his money. When times become bad and he gets pinched, then he discovers the machinations of monopoly and all the rest of the story. The reading of this biography will show that that has been recurring in the oil industry almost every dozen years since the industry started, and each time the cycle of narrower margins has come regardless of the reasons. There were investigations and court actions and charges and countercharges.

I am not saying that the Standard Oil Co. was lily white by any means, any more than I am saying that the big companies are lily white today, and any more than I am saying that their competition is lily white, but if one will stand off and read the history, I believe any fair-minded man will realize that no matter how certain individuals may have fought in any given battle, that over a period of the development of this industry, as has been true with all industries, has come continued greater efficiency and continued competition, which naturally brought lower costs and narrower margins. All of the improvements that have come into the oil industry have not come all at once to all people in the industry. They have been developed by individuals, some Standard, some Independent. Their growth was not always apparent to some competitors, maybe even for years. To others it might be apparent at an early date.

The consequence has been, as one can see from looking at nearly 80 years of the oil industry in this biography of Mr. Rockefeller, that the forces of competition and of economics were naturally oftentimes easily overlooked.

This bird's-eye view of 80 years of the oil industry, which is about all there is to it, shows that always there have been men in all branches of the oil industry, with little capital, with poor management, who could make money in the flush periods only to lose it in the hard periods.

This 80-year view of the oil industry shows that the battle over freight rates today is the same battle that has been going on over oil industry transportation since the beginning of the industry. It has been one of the most fundamental battles of oil history. Also, this 80-year view shows 80 years of battle against bigness, bigness that aroused fear in the minds of competitors.

And this 80-year view also will show the reader who wants to stand back a little from the battle line, that while the rules have been changed, improved, if you would, a competitive fight is still a fight. A battle between two or more companies for a given market, finally gets down to who can serve that market best at the least money, and the Golden Rule is quite likely to be discarded at different periods, by both sides and that has been true all down through the 80 years.

I first heard the sad story of the independents' battle against the dastardly Standard Oil monopoly almost 40 years ago when working as a newspaper man on a Cleveland daily. Much of the battle was fought from Cleveland so I had to report a good deal of it myself. The Standard and the independents seemed like big outfits at that time and that there were many of them, but in looking back over these years, I can see that the battle was among a handful of men. There weren't more than a few hundred companies producing and refining, with a handful of jobbers, involved in the fight of 40 years ago, not as many as at still earlier periods in the oil industry, because at one time there were as many as 80 refineries in Cleveland alone.

When reading Mr. Rockefeller's biography, contrast the picture of small numbers of any of those early day periods with the more than a score of large major oil companies, with more than 300 independent refining companies, some of them larger than the Standard Oil Co. was 50 and 60 years

ago. Contrast the handful of marketers with the more than 10,000 independent jobbers today, most of them doing far more business than many of the Standard's important marketing subsidiaries, and compare that with some 78,000 independent oil producers of today.

Despite the battling of the 80 years recorded by this biography, despite the investigations, the law-suits, the indictments, this oil industry has grown continuously, has provided large fortunes for a great many men and decidedly comfortable living for a great many hundreds of thousands of other men and it is still growing. Perhaps you will also come to the conclusion that maybe this is natural growth for a competitive era and that the alternative to this battling, breaking of heads, charges and counter-charges, from which an industry seems to develop, may be that which is offered by our totalitarian experts, to wit, to leave it all to them and let them tell us when we can start up in business, where we shall start, whom we shall employ, how much we shall pay them, what we shall sell, how we will sell it, and how much money we can make out of it.

In looking back over the 80 years in these pages about Mr. Rockefeller, perhaps you may also agree that even with a totalitarian management of the oil industry, there would still be battles, because I don't believe the average American is built to take orders from a dictator.

(This two-volume biography may be purchased through NATIONAL PETROLEUM NEWS, 1213 West 3rd St., Cleveland, O., for $7.50)

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

KILFROST, Ser. No. 400,307, Kilfrost Manufacturing Co. Ltd., London, England. Filed: Nov. 30, 1937. For signal and switch lubricating compound. Published: Oct. 29, 1940.
SUNSET MARINE, Ser. No. 405,943, Sunset Oil Co., Los Angeles. Filed: May 2, 1938. For petroleum products—namely, gasoline. Published: Oct. 29, 1940.
MOVOL, Ser. No. 424,535, Bayview Oil Co., Richmond, Calif. Filed: Oct. 14, 1939. For lubricating oil having cleansing properties. Published: Oct. 29, 1940.
WHIRLWIND, Ser. No. 425,035, Stanley W. Holton, West Central Gas Co., Louisburg, Minn. Filed: Nov. 1, 1939. For gasoline, kerosine, lubricating oils, and greases. Published: Oct. 29, 1940.
SAMCO QUALITY PRODUCTS D-OX, Ser. No. 433,127, Samuel A. Mandel, Brooklyn, New York. Filed: June 18, 1940. For lubricating oils. Published: Oct. 29, 1940.
PENN-TONE, Ser. No. 433,759, The Pure Oil Co., Chicago, Illinois. Filed: July 8, 1940. For lubricating oils. Published: Oct. 29, 1940.
MUTUAL and silhouette of rabbit, Ser. No 433,936, Mutual Oil Company, Inc., Birmingham, Alabama. Filed: July 13, 1940. For gasoline, kerosine, lubricating oils, and lubricating greases. Published: Oct. 29, 1940.

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SAFETY in Oil Marketing

● "Any motorist prefers to patronize the safe station," says the foreword to the 1941 revised edition of American Petroleum Institute's safety manual for service stations, pointing out that safe operations are a business asset.

Recommended practices for service station operators to avoid accidents, based on the safety experience of some 60 oil companies, have been embodied in this 29-page booklet just issued, titled "API Accident-Prevention Manual on Operation of Service Stations, Second Edition, 1941."

This safety manual (which should not be confused in any way with regulations, because it is simply a collection of recognized good practices) is the product of a year's work. It represents a revision of a similar station safety manual issued in July, 1933.

Committee preparing this revised manual was headed by A. L. Anderson, of Standard Oil Co. of California, who was recently transferred to Bahrein Island, Persian Gulf, as safety director there for California Arabian Standard Oil Co. He arrived on the island the same day it was bombed from the air.

Other members of the committee were: J. S. Boylan, Ponca City, Okla., of Continental Oil Co.; D. V. Dickinson, Los Angeles, of Union Oil Co.; R. G. Guthrie, Philadelphia, of Sun Oil Co.; F. R. McLean, Detroit, of Socony-Vacuum Oil Co.; and Alexis de Tarnowsky, Chicago, Pure Oil Co.

Draft prepared by this committee was reviewed and supplemented by members of the API Central Committee on Accident Prevention, composed of representatives of some 60 oil companies. Recommended for publication by this central committee, the draft was reviewed and approved for the General Committee, Division of Marketing.

"The modern service station," said the foreword to the new station safety manual, "is no longer a simple gasoline and oil dispensary, but is a multiphased business establishment catering to the many needs of the motorist.

"Many are the elements that go to make up courteous and efficient customer service at a service station. Not the least among these is safe practices. Any motorist prefers to patronize the safe station.

"In the first place, a safe station insures safety to the motorist and to his car.

"In the second place, safe practices indicate alert and capable station supervision which, in turn, indicates that all products and services at the station are of uniform high quality.

"Safe operations, therefore, constitute a business asset through which each service-station attendant can expand his own clientele.

"It is the purpose of this manual to give the retail marketer and his employees the benefit of the accident experience of the industry as a whole. The suggestions and safe practices given herein represent the cumulative experience of practically the entire industry. It is hoped that this information will be of assistance in the reduction of injuries to service-station attendants and to the public."

In this issue, NPN publishes excerpts from sections of the API station manual on gasoline deliveries, oil service and radiator service. Excerpts from other sections will be published in subsequent issues of NPN. Safety recommendations are included for following services at stations: anti-freeze, windshield, air, batteries, headlight, lubrication, tires and car washing. General subjects, such as yard and building maintenance, tools and equipment, fire prevention, fire extinguishing equipment, fire fighting and first aid, are also covered.

NPN readers desiring copies of the 29-page API station safety manual, with complete text and illustrations, may use the coupon on page 36. Single copies are 25c each, with discounts on quantities (see schedule on coupon).

Following are excerpts from the API manual on gasoline deliveries and oil and radiator service:

GASOLINE DELIVERIES

Meeting the Customer

Good service at a station requires that the attendant should greet each customer promptly. However, running to give service involves hazards. Care should be taken not to run in front of a moving vehicle. The station attendant has no control over his customer's driving. If a driver should become confused by having an attendant run in front of his car, the attendant may be hit; or in an attempt to avoid hitting the attendant, the driver may hit the building or the pumps.

Safe Position

If the attendant is already at the pump block when a customer pulls into the driveway, the attendant should stand where the customer's car cannot pin him against the pumps or pump-block curb.

Beware of Trailer Hitches

When passing around the rear of the customer's car, attendants should look out for trailer hitches and exhaust pipes that may extend beyond the bumper. Striking against such objects has resulted in serious knee injuries.

Tipping the nozzle upward prevents gasoline from dripping onto the fender. A close watch on fuel tank often prevents spills.

Attendant's Responsibility

Service-station attendants should be mindful that they are handling products which in the hands of the inexperienced may become dangerous. They should be on guard to prevent any unsafe act on the part of a customer or a passer-by. Customers depend on service-station attendants not only for specialized service, but for the rendering of those services in a safe manner.

Stop Motor

A motor vehicle should not be serviced while the motor is running or the car in motion. The driver politely should be requested to shut off the ignition before an attempt is made to fill the tank. Gasoline vaporizes readily, and thus presents a fire hazard in the presence of electric sparks from car wiring or of carbon sparks from the engine exhaust.

No Smoking

The attendant should not smoke on the service-station property, and he should caution customers against smoking or striking matches on the premises. If a customer is observed smoking, the attendant should inform him courteously of the danger of smoking in the presence of gasoline vapors. A lighted cigarette or cigar should be extinguished before it is thrown to the ground so as to avoid ignition of gaso-

line vapors—which, being heavier than air, tend to remain close to the ground.

Self-service Hazards

Customers should not be permitted to handle the gasoline service. The customer's lack of familiarity with the gasoline-dispensing equipment and the procedure for its operation increases the possibility of gasoline spills and other fire hazards.

Extinguish Lights and Flames

Deliveries should not be made to trucks on which there are acetylene lights, nor to highway tar wagons if there is a fire in the firebox, nor to peddlers' carts with open flames, unless such lights and fires have been extinguished completely. Vehicles carrying auxiliary internal-combustion engines, such as those for air compressors or concrete mixers, should not be serviced while the engines are running. The service-station attendant should be sure that the ignition on these motors has been shut off before he starts servicing.

Closed Cars

If the fuel tank is located inside a closed car, before an attempt is made to fill the tank the customer should be requested to open the doors or windows for ventilation; because a spark in the presence of accumulated vapors inside a closed car may result in an explosion. Under no circumstances should smoking be permitted while such a tank is being filled.

Tanks in the Cowl

In order that spillage be prevented from reaching the exhaust pipe or other source of ignition, special care should be taken to see that a tank located underneath the seat or in the cowl does not overflow. Ordinarily gasoline does not ignite when it comes in contact with hot metal; but other conditions which do support combustion might prevail—possibly with disastrous results.

Tank Caps

It should be standard practice with every service-station attendant who delivers gasoline to motor vehicles to hold the car's tank cap in his hand while he fills the tank. He should not put the cap in his pocket nor lay it on the car. Before some other service or duty is performed, the cap should be replaced on the tank fill pipe.

Maintain Nozzle Contact

The delivery-hose nozzle should be inserted firmly in the customer's tank, and metallic contact made with the filling opening; this contact should be maintained until the delivery has been completed. Without metallic contact, the flow of gasoline through the hose may set up a charge of static electricity across the gap between the nozzle and the filling opening. Therefore, the attendant should form the habit of estab-

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lishing metallic contact before he starts gasoline through the hose.

Watch Tank

Gasoline spills often result because the attendant concentrates attention on the gasoline pump instead of on the fuel tank of the car. If the customer says "fill 'er up," the pump-dial readings are of no consequence during the filling operation. Full attention should be given the fuel tank to prevent its overflow. Pump readings can be made after the filling operation has been completed.

Remain at the Tank

The attendant should not leave the customer's tank while gasoline is being pumped into it. However, with most modern pump installations it is not possible for the attendant to leave the tank because, in order to operate the delivery-hose nozzle, constant pressure is required on the control valve.

Spills

In case of a spill, the car should be pushed off the driveway, and the customer warned not to start the engine until the spillage has been wiped up. Gasoline should be wiped off the outside of the tank, and the gasoline-tank cap replaced. The spill should be washed down with a stream from the water hose. The gasoline-soaked rags should be placed in a covered metal container. Gasoline or a mixture of gasoline and water on the concrete slab is a fire and a slipping hazard, and for that reason should be removed thoroughly, without delay.

Draining the Nozzle

In order to prevent spills on clothing, shoes, or on the customer's car, the hose nozzle should be drained thoroughly before it is removed from the tank. Tipping the nozzle upward while it is being removed from the fill opening will prevent gasoline from dripping onto the car.

Gasoline on Skin or Clothing

Clothing should be changed immediately if it has become saturated with gasoline, and it should be kept away from fires. Gasoline, whether it contains lead or not, immediately should be washed from the skin.

Containers should be labeled to indicate the contents

Replace Cap and Hang Up Hose

After a gasoline delivery has been completed, the customer's gasoline-tank filler cap should be replaced, and the hose should be hung up securely on its hook before any further service is rendered. Some electric meter pumps are designed so that the weight of the hose on the hanger shuts off the motor; therefore, the hose should be hung on the hanger, and not anywhere else. It is good practice first to shut off the pump motor, then to hang up the hose.

Cars have been allowed to drive away with the hose and nozzle still in the tank opening, and serious injury has resulted from the whip of the hose as it jerked free—also causing damage to gasoline pumps and motor cars. The delivery hose should not be twisted when it is hung up, because twisting may cause the hose to jump out of its hanger. The hose should be looped in such a manner that cars approaching or leaving the station will not hook the hose with their bumpers or other projections.

To Fill Motorcycle Tanks

Motorcycle fuel tanks should not be filled with the delivery hose because of the danger of gasoline overflowing; furthermore, a dripping hose might come in contact with a hot exhaust pipe. A one-gallon measure should be provided for motorcycle servicing, and metallic contact should be maintained while gasoline is being poured. Motorcycle and side-car passengers courteously should be requested to alight before gasoline delivery is started.

Leaded Gasoline

Gasoline treated with tetraethyl lead should be sold as "motor fuel" only. IT SHOULD NOT BE USED FOR CLEANING; NEITHER SHOULD IT BE USED IN STOVES OR LAMPS. Attendants who deliver lead-treated gasoline should wash their hands thoroughly with soap and water before eating, and care should be exercised to keep the hands free of leaded gasoline.

To Fill Small Containers

Gasoline should not be delivered into bottles nor other glass containers, as these easily are broken, thus creating a fire hazard. Customers should be cautioned to use approved safety cans only—fitted with tight covers and painted red to distinguish them from other containers. Containers filled with gasoline should be labeled "GASOLINE." Gasoline should not be sold to children, nor to others who do not know how to handle or use it properly. The container should be removed from the automobile before it is filled with gasoline.

Gasoline Is Not for Cleaning

Gasoline should not be used for cleaning tools, parts, floors, nor for any other cleaning purpose. Gasoline is NOT a cleaning fluid, and should not be sold as such. Customers should be advised to use Stoddard solvent or some other equally safe solvent manufactured especially for cleaning.

Container Labels

Cleaning-solvent and kerosine containers, as well as gasoline containers, should be labeled indicating their contents. Receptacles which have contained gasoline should be cleaned by washing the interior with water or by rinsing with a small amount of the new product before these containers are used for solvents or kerosine. Even a small quantity of gasoline liquid or vapor may increase dangerously the flash point of Stoddard solvent or kerosine.

OIL SERVICE

To Check the Oil

To get a more accurate check and to eliminate the possibility of having a hand injured by the moving fan, the motor should be stopped before the oil level is checked. Inasmuch as the motor always must be stopped for gasoline service, it is convenient to per-

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Position .....

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The attendant stands to one side so that he will not be struck in the event the customer should start the car. Care should be exercised in raising the hood to a position that will prevent it from falling

form oil service after the gasoline delivery has been completed and before the customer starts his car.

Because the location of the bayonet oil gage varies widely among the different makes of cars, additional care should be exercised so that the attendent will not be burned on the car manifold, nor scratched by sharp edges on the engine or the hood.

Engine Hoods

The engine hood should be lifted to a position that will prevent it from falling. Special attention should be given to the alligator-type hoods, because frequently the balance springs on these hoods are defective, causing the hood to fall suddenly. After the oil service has been completed, the hood should be locked securely so that it will not fly up after the car is on the road and perhaps cause injury to the driver of the car.

RADIATOR SERVICE

Overheated Radiators

If mishandled, an overheated radiator can be dangerous. Many attendants have been burned seriously by the escaping steam when radiator caps were not removed properly. Usually when a car with the radiator steaming comes into a station, it is found that the water is low and the upper part of the radiator is filled with steam. If the cap is removed suddenly, this steam rushes out with considerable force and may scald the person who removes it. Therefore, the attendant should stand at arm's length and unscrew the cap slowly—allowing the steam to escape gradually. A large rag should be used to protect the hands and face from any rush of steam and hot water. The best practice is to wait until the boiling has ceased before an attempt is made to remove the cap.

Pressure-Type Cooling Systems

Some cars are equipped with pressure-type cooling system, and these cars have special radiator caps which are removed in two stages. After the cap has been twisted to the first stage, the cap should remain in this position until any existing steam or pressure has been dissipated. The cap then can be twisted to the second stage and removed. A rag should be used to prevent escaping steam from burning the hand or wrist.

Hot Engines and Cold Water

To prevent the possibility of cracking the engine head or block, the attendant should not put cold water into an overheated radiator if the water supply is low and the engine extremely hot. The engine should be allowed to cool off before water is put in. The driver should be asked to idle the motor so that the cold water will circulate and absorb the heat slowly. Before he makes the request to start the motor, the service-station attendant should step to one side of the car so that he will not be struck in the event the car is in gear.

Stand in the Clear

If the customer is in the driver's seat when the car is to be serviced with water, the attendant should stand to one side of the car to avoid being struck in the event the car accidentally should be started. Many cars of recent model have the radiator fill cap under the hood, where it readily can be reached from the side of the car.

Hood Locks

Some automobiles are equipped with hood locks which are controlled from the instrument panel. Upon completion of under-the-hood service, the driver should be cautioned to relock the hood-control lever on the dash.

Photographs courtesy A.P.I.

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From Motor Service to Public Service Is the Record of Senator Bunker

Senator Berkeley Bunker

N. P. N. News Bureau

WASHINGTON, Feb. 15.—If you were to ask Berkeley Bunker, new United States Senator from Nevada, whether operating a service station is valuable training for Congress, his answer would be, "Yes."

There is no business so close to the pulse of the country as a service station, according to Senator Bunker, who operates a Texaco leased station in his home city of Las Vegas, Nev. Every day the service station operator comes in contact with persons from all parts of the country and as a result, he is placed in a position where he gains a first-hand appreciation of just how many different ideas, beliefs and viewpoints go to make up American public opinion.

Senator Bunker, whose 2-year appointment by the governor of Nevada as successor to the late Key Pittman attracted national attention last November, inherited his interest in politics from his father, Martin Bunker, active in Nevada's public affairs.

Service station experience of Nevada's new 34-year old senator began some 10 years ago, when he went to work at the Texaco station in Las Vegas, which he has operated as his own business since 1934.

Joins Young Democrats

Running a service station, however, did not keep Senator Bunker from a political career, which began when he joined the Young Democrats of Nevada, and led to his election as president of that organization, and to 3 terms in Nevada's General Assembly.

Senator Bunker was just completing his second term in the state legislature, where he served as speaker of the Assembly, when Gov. E. P. Carvill, appointed him to fill the United States Senate seat left vacant by the death of Nevada's veteran Senator Key Pittman.

Since coming to Washington, Senator Bunker says he has been devoting himself to learning the whys and wherefores of the United States Senate, where his time has been spent largely in attending sessions of that body and its committees. Senator Bunker is a member of 4 Senate committees, agriculture and forestry, mines and mining, education and labor, and Indian affairs.

Seen But Not Heard

Because he believes a new senator should be seen and not heard until he is well acquainted with the workings of Congress, Senator Bunker reports he so far has not seen fit to sponsor any legislation, nor has he been disposed to take specific stands on national issues.

Senator Bunker's opinions on public questions include a belief that labor should get its fair share of the benefits from the defense program.

Being a member of the Senate from a mining state, Senator Bunker has firm convictions on the need for maintaining the price of gold and silver.

He also feels that all social gains must be retained, but at the same time thinks that business has not been given as much encouragement as it might in recent years. As a solution, he believes government should adopt a policy of lending more encouragement to individual effort in industry—in other words, as he expresses it, "provide business with a green light."

Senator Bunker is a native of Nevada. His birthplace, St. Thomas, no longer exists, having been located on what is now the bottom of the lake created by Boulder Dam. He is a bishop in the Mormon church, and married. Mrs. Bunker and their 3-year-old daughter are in Washington for the congressional session.

Socony Asks O.K. On Sale of Tankers; 18 Put Under Foreign Flags in a Year

N. P. N. News Bureau

WASHINGTON—Maritime Commission reports application of Socony-Vacuum Oil Co. for sale of tankers Yorba Linda and Algonquin to Petroleum Shipping Co., Ltd., of Panama, with transfer to Panamanian registry.

Yorba Linda was built in 1921 and has a gross tonnage of 6,900, while Algonquin was built in 1920 and has a gross tonnage of 7,229. Both tankers have a length of 435 feet and a speed of 10½ knots.

During the year ended Oct. 25, 1940, the Commission approved the transfer to alien ownership or registry, 18 American flag tankers having total gross tonnage of 100,484, and averaging 23.5 years of age.

Following table shows Maritime Commission approved tanker transfers from Oct. 26, 1939 to Oct. 25, 1940. Commission reports no tanker transfer approvals have been made since the latter date.

Tanker	Gross Tonnage	Year Built	Former Owner	Purchaser	Registry
Capt. A. F. Lucas	4188	1904	S. O. Calif.	Balboa Corp.	Panamanian
Santa Maria	8482	1922	Union Oil	No sale	Panamanian
Norman Bridge	4323	1913	S. O. New Jersey	Gow Harrison & Co.	
				Compania De Petroleo Lago	Venezuelan
Ruth Kellogg	5037	1930	Kellogg Steamship	Gow Harrison & Co.	British
Amsco	4626	1918	Amsco Nav. Co.	Common Bros. Ltd.	British
La Brea	6665	1916	Union Oil Co.	John J. Jacobs & Co.	British
Coalinga	875	1910	Tide Water	Cia Peruana De Vapores	Peruvian
Warwick	4469	1921	Union Oil Co.	Joaquim Monteiro De Carvalho	Brazilian
Louisiana	2849	1901	Texas Co.	Texas Co., Panama City	Panamanian
T. J. Williams	8211	1921	S. O. New Jersey	Panama Transport Co.	Panamanian
George G. Henry	6265	1917	S. O. New Jersey	Panama Transport Co.	Panamanian
John Worthington	5155	1920	S. O. New Jersey	Panama Transport Co.	Panamanian
Sylvan Arrow	7797	1917	Socony-Vacuum	Petroleum Shipping Co. Ltd.	Panamanian
T. J. Conway	480	1930	T. J. Conway	International Petr. Co.	Peruvian
Royal Arrow	7794	1916	S. O. New Jersey	Petroleum Shipping Co. Ltd.	Panamanian
William G. Warden	9114	1917	S. O. New Jersey	Panama Transport Co.	Panamanian
H. G. Folger	7086	1916	Atlantic	Lloyd Brasileiro	Brazilian
J. E. O'Neill	7070	1918	Atlantic	Lloyd Brasileiro	Brazilian

MARKETS

Mid-Western

CHICAGO, Feb. 15.—Several Mid-Western refiners reported 0.125c reductions in their quotations for burner fuels the past week. Low quotations reported for No. 1 p. w. and No. 2 straw fuels ranged upward from 3.75c and 3.375c, respectively, and two refiners reported quoting 3.875c for range oil. No changes were reported in refiners' quotations for other products.

Quotations reported by marketers ranged from 3.375 to 3.875c for range oil, 3.25 to 3.875c for No. 1 p. w., and 3 to 3.50c for No. 2 straw.

Open spot sale of 2 cars of 72-74 oct. at 3.875c, 0.125c above the last reported sale price, was reported by a tank car marketer late in the week. Quotations reported by marketers ranged from 3.75 to 3.875c for 72-74 oct., while Group 3 quotations reported by refiners ranged from 4.375 to 5c.

Most suppliers said gasoline and burner fuel movement continued steady throughout the Middle West. One refiner reported tractor fuel demand especially good from the northwest.

Open spot sales reported by four tank car marketers during the week totaled as follows: 14 cars of 80-82 oct. ethyl at 4.25c; 8 cars of 72-74 oct., 6 cars at 3.75, 2 cars at 3.875c; 2 cars of 63-66 oct. at 3.25c; and 3 cars of No. 2 straw at 3.125c, FOB Group 3.

Atlantic Coast

NEW YORK, Feb. 15.—No changes in quotations for refined products were reported by suppliers along the Atlantic coast the week ended Feb. 15.

Mid-Continent

TULSA, Feb. 15.—Prices for light fuels were off 0.125c on the lows in Oklahoma the past week. Refiners reported quotations ranging from 3.875 to 4.125c for range oil, 3.75 to 4.125c for No. 1 p. w., 3.375 to 3.75c for No. 1 straw, 3.375 to 3.625c for No. 2 straw, 3.25 to 3.50c for No. 3, and one refiner reported quoting 3.25c for No. 2 dark fuel.

"This season's demand for light fuels has been disappointing," one refiner commented. Most refiners said demand had been "fair."

Refiners continued to report "slackening of low-price competition" in the north, due in part, they said, to absorption in crude pipe lines of raw distillate from Texas recycling plants. Gasoline shipments continued in good volume, according to reports. An Oklahoma refiner reported buying 15 cars of Ethyl from another refiner and said he was 4 to 5 days behind on shipments.

Domestic demand for lubes continued in good volume; export "fair," according to reports. One refiner said buyers had been endeavoring to clear ports before Feb. 15 to avoid embargo on goods in steel packages.

California

LOS ANGELES, Feb. 15.—An advance of 0.25c per gal. was reported the past week in prices of third grade gasoline at independent plants in the Los Angeles Basin. This brought the range at most plants to 5 to 5.5c. However, a small quantity of gasoline with high-sulphur content was said to be available at 4.75c.

High-sulphur crudes from the Wilmington field were reported offered at $0.45 per bbl., or 15c below posted prices.

Both heavy and light grades of fuel oil were said to be in good demand, with quotations reported for heavy oil ranging from $0.525 to $0.60, and for light oil from $0.60 to $0.65 per bbl. Only small quantities of either grade were offered at the low figures, it was said.

In the export market, an advance of 25c per bbl. was reported in quotations for Bunker C fuel oil for ships' bunkers or in deep tank lots, bringing the range to $0.70 to $0.75.

Pennsylvania

CLEVELAND, Feb. 15.—Demand for kerosine and light fuel oils continued good in Western Penna. the past week, according to refiners' reports. One upper field refiner said he was "sold up" on furnace oils, and had withdrawn from the open spot market. Another upper field refiner, ordinarily a seller, said he had purchased 50,000 gals. of 36-40 fuel. Quotations reported by refiners in the Bradford-Warren district for No. 3 fuel were up 0.25c to 5.375c; 36-40 gravity fuel up 0.125c to 5.25c.

Neutrals continued "tight," according to most refiners. Conflicting reports were heard regarding bright stock, with some refiners reporting higher quotations while others said the market was "easier." Two refiners reported 0.5c advances to 14.50c in their quotations for 25 pour bright; two other refiners reported quoting 14c.

Gulf

NEW YORK, Feb. 15.—Inquiries for two cargoes of gasoline and a cargo sale of min. 80 oct. (1939 Research) gasoline were the sum total of activity in refined products at the Gulf, according to reports the past week. Light and heavy fuels were "considerably weaker," according to some reports.

Inquiry was reported for a cargo of 80,000 bbls. of min. 80 oct. gasoline for late February—early March lifting, and one refiner said he had received an inquiry for a cargo of 60 oct., 375 end point, gasoline for coastwise shipment at 3.375c. "No one is interested in making a firm quotation at that price," this refiner said. Details as to loading date and price of a cargo of min. 80 oct., reported sold "recently" could not be obtained from either buyer or seller. Refiners' asking prices reported for this grade ranged from 4.25 to 5.25c.

No. 2 fuel was offered 0.125c lower at 3c the past week, according to reports here and from the southwest. Asking prices reported by some refiners for No. 2 fuel ranged up to 3.25c.

U. S. Oil Refineries Process 250 Million Barrels in '39

WASHINGTON—Volume of principal raw materials consumed by the nation's 485 refineries during 1939 include 1,250,256,188 bbls. of crude petroleum, Census Bureau reported today. This figure was 89,000,000 bbls. above 1937.

Partially refined oils, tops, waxes, etc., amounted to more than 63,000,000 bbls., and natural gasoline to 51,785,031 bbls.

Other products used in the petroleum refining business in 1939 were sulphuric acid, 924,589 tons; soda ash, 11,318 tons; caustic soda, 99,297 tons, and Fuller's earth, 158,386 tons.

Texas, California and Pennsylvania refineries, in order, ranked as largest users of crude petroleum. Texas refineries took 402,173,951 bbls.; California, 201,262,815 bbls.; Pennsylvania, 101,319,869 bbls.; Indiana, 78,050,627 bbls.; New Jersey, 77,417,681; Louisiana, 61,984,417; Oklahoma, 57,741,850; Illinois, 55,077,209; Kansas, 47,980,966; Ohio, 42,417,642; Michigan, 19,796,671, and New York, 17,715,864.

REFINERY and SEABOARD PRICES

In bulk lots by Motor Transport, Tank Car, Barge or Tanker as shown

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

HOW PRICES ARE REPORTED—

Refinery and Seaboard prices in National Petroleum News are gathered by PLATT'S OILGRAM and are as published in the Monday issue of the OILGRAM.

PLATT'S OILGRAM is a reporting service issued in three identical editions daily from News Bureaus at New York, Cleveland, and Tulsa, Okla. PLATT'S OILGRAM gathers and publishes what its publisher and representatives believe to be accurate news of sales, prices and current happenings affecting the oil industry and that will be of interest to its subscribers. As this information is usually private, OILGRAM reports it according to what it is able to obtain from sources deemed reliable.

All information is supplied without guarantee as to its completeness, accuracy time of transmission or promptness of delivery.

The subscriber receives this information for his private use and not for resale or further distribution.

Publisher reserves the right to change the extent, nature and form of showing this information at any time.

Prices shown in the tables are quotations (meaning sellers' general offers or posted prices), or actual sales prices, reported to OILGRAM by refiners for "open spot" transactions, except as otherwise specified.

Prices arrived at by discounts off a specified price or "market date of shipment," prices named in contracts or prices arrived at in accordance with any arrangement made prior to date of sale, are not for "open spot" transactions and therefore are not considered in making the price tables. Prices made to brokers and prices in "Inter-refinery" transactions are also not considered except as may be noted.

All prices are for "immediate" shipment except in Gulf Coast bulk transactions where shipment is generally to be made in ninety days. Prices are FOB refineries, pipelines, or tanker terminals in districts designated.

Prices shown are for quantities in bulk such as tank car lots, motor transport lots or barge lots; and in cents per gallon; heavy fuel oils are in dollars per barrel of 42 U.S. gallons; wax and petrolatums are in cents per pound. Prices applying to barges or cargoes only are so designated.

Prices do not include taxes or inspection fees. Prices are published at the close of the business day.

Mid-Western prices in the tables were gathered from refiners with offices located in Chicago and the surrounding territory. While the prices are quoted on a Group 3 (Oklahoma) freight basis, this is in accordance with the custom of the oil industry which uses Group 3 as a price basis for the ease of comparing prices even when the material originates in another refining district. Other refinery prices are given by and for the particular refining district where the material is made and from which it is shipped.

When prices obtained by OILGRAM do not conform to these conditions the exception and the new conditions are noted in the news lead or in conjunction with the price table by footnote or otherwise, for the particular refinery or sales district involved.

Crude oil and products covered by OILGRAM'S news and price service, except where noted, have been represented to the publisher as fully up to the customary trade specifications indicated and according to the generally accepted methods of test: and all crude oil and all products thereof as having been lawfully produced and transported.

Any apparent error should be reported to the nearest OILGRAM or National Petroleum News office at once as no correction will be made after the second issue of the OILGRAM or National Petroleum News following its publication.

Summary of Daily Gasoline Prices (Feb. 11 to Feb. 17)

	Latest Prices Monday, Feb. 17	Friday, Feb. 14	Thursday, Feb. 13	Wednesday, Feb. 12	Tuesday, Feb. 11
U. S. Motor, (ASTM octane)					
80-82 octane Ethyl:					
Oklahoma	4.625– 6.00	4.625– 6.00	4.625– 6.00	4.625– 6.00	4.625– 6.00
Mid-Western (Group 3 basis)	5.375–6.00 (2)	5.375–6.00 (2)	5.375–6.00 (2)	5.375–6.00 (2)	5.375–6.00 (2)
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.50 (1)	5.50 (1)	5.50 (1)	5.50 (1)	5.50 (1)
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	5.625 (1)	5.625 (1)	5.625 (1)	5.625 (1)	5.625 (1)
72-74 octane:					
Oklahoma	(a) 4.375–5.00	(a) 4.375–5.00	(a) 4.375–5.00	(a) 4.375–5.00	(a) 4.375–5.00
Mid-Western (Group 3 basis)	4.375– 5.00	4.375– 5.00	4.375– 5.00	4.375– 5.00	4.375– 5.00
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125	4.50 – 5.125
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.625 (2)	4.625 (2)	4.625 (2)	4.625 (2)	4.625 (2)
63-66 octane:					
Oklahoma	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50
Mid-Western (Group 3 basis)	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50	4.00 – 4.50
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.125– 5.00	4.125– 5.00	4.125– 5.00	4.125– 5.00	4.125– 5.00
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	4.125 (2)	4.125 (2)	4.125 (2)	4.125 (2)	4.125 (2)
60 octane & below:					
Oklahoma	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125
Mid-Western (Group 3 basis)	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125	3.625– 4.125
N. Tex. (For shpt. to Tex. & N. M. dest'ns.)	3.75 – 4.50	3.75 – 4.50	3.75 – 4.50	3.75 – 4.50	3.75 – 4.50
W. Tex. (For shpt. to Tex. & N. M. dest'ns.)	3.875 (2)	3.875 (2)	3.875 (2)	3.875 (2)	3.875 (2)
Motor Gasoline, 72-74 octane (ASTM)					
New York harbor	5.50 – 6.80	5.50 – 6.80	5.50 – 6.80	5.50 – 6.80	5.50 – 6.80
New York harbor, barges	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50	5.25 – 5.50
Philadelphia district	5.50 – 7.00	5.50 – 7.00	5.50 – 7.00	5.50 – 7.00	5.50 – 7.00
Baltimore district	5.50 – 6.75	5.50 – 6.75	5.50 – 6.75	5.50 – 6.75	5.50 – 6.75
Motor Gasoline:					
74-76 Octane: (L-3)					
Bradford-Warren (Western Penna.)	6.00–6.25 (2)	6.00–6.25 (2)	6.00–6.25 (2)	6.00–6.25 (2)	6.00–6.25 (2)
Other Districts (Western Penna.)	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00	5.75 – 6.00

REFINERY PRICES

Gasoline—U. S. Motor (ASTM Octane) except where otherwise specified

Prices Effective	Feb. 17	Feb. 10
OKLAHOMA		
80-82 oct. Ethyl	4.625– 6.00	4.625– 6.00
72-74 oct.	(a) 4.375–5.00	(a) 4.375–5.00
63-66 oct.	4.00 – 4.50	4.00 – 4.50
60 oct. & below	3.625– 4.125	3.625– 4.125
60-62 400 e.p.	3.75–4.00 (2)	3.75–4.00 (2)
MID-WESTERN (Group 3 basis)		
80-82 oct. Ethyl	5.375–6.00 (2)	5.375–6.00 (2)
72-74 oct.	4.375– 5.00	4.375– 5.00
63-66 oct.	4.00 – 4.50	4.00 – 4.50
60 oct. & below	3.625– 4.125	3.625– 4.125
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
80-82 oct. Ethyl	5.50 (1)	5.50 (1)
72-74 oct.	4.50 – 5.125	4.50 – 5.125
63-66 oct.	4.125– 5.00	4.125– 5.00
60 oct. & below	3.75 – 4.50	3.75 – 4.50
60-62, 400 e.p.	4.125–4.75 (2)	4.125–4.75 (2)
W. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
80-82 oct. Ethyl	5.625 (1)	5.625 (1)
72-74 oct.	4.625 (2)	4.625 (2)
63-66 oct.	4.125 (2)	4.125 (2)
60 oct. & below	3.875 (2)	3.875 (2)
CENT. W. TEX. (Prices to truck transports)		
80 oct. & above	6.00 (1)	6.00 (1)
72-74 oct.	4.50 (1	4.50 (1)
67-69 oct.	4.00 (1)	4.00 (1)
62 oct. & below	3.625 (1)	3.625 (1)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
60 oct. & below	4.375 (1)	4.375 (1)
60-62, 400 e.p.	4.75 (1)	4.75 (1)

Prices Effective	Feb. 17	Feb. 10
KANSAS (For Kansas destinations only)		
80-82 oct. Ethyl	5.50 (1)	5.50 (1)
72-74 oct.	4.50 – 4.875	4.50 – 4.875
63-66 oct.	4.25 – 4.75	4.25 – 4.75
60 oct. & below	3.875– 4.125	3.875– 4.125
ARK. (For shipment to Ark. & La.)		
72-74 oct.	4.50 (1)	4.50 (1)
70-72 oct.	4.375 (1)	4.375 (1)
60 oct. & below	3.875 (1)	3.875 (1)
WESTERN PENNA. (Motor gasoline.)		
Bradford-Warren:		
74-76 oct. (L-3)	6.00–6.25 (2)	6.00–6.25 (2)
Other districts:		
74-76 oct. (L-3)	5.75 – 6.00	5.75 – 6.00
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group)		
U.S. Motor: (Oct. L-3):		
72-74 oct.	6.50 – 7.00	6.50 – 7.00
67-69 oct.	5.50 – 6.25	5.50 – 6.25
Str. run gasoline, excluding Detroit shpt.	4.50 – 5.00	4.25 – 5.00
OHIO (S. O. Ohio quotations for statewide delivery and subject to exceptions for local price disturbances)		
72-74 oct.	7.125	7.125
CALIFORNIA U.S. Motor:		
58-61 grav., 375-400 e.p., 65 oct. & above	5.50 – 6.50	5.50 – 6.50
54-58 grav., for outside state shipment	5.00 – 6.00	5.00 – 6.00
54-58 grav., for instate shipment	5.00 – 5.50	4.75 – 5.50

Kerosine, Gas & Fuel Oils

Prices Effective	Feb. 17	Feb. 10
OKLAHOMA		
41-43 grav. w.w.	4.00 – 4.25	4.00 – 4.25
42-44 grav., w.w.	4.25 – 4.375	4.25 – 4.375
Range Oil	3.875– 4.125	4.00 – 4.125
No. 1 P.W.	3.75 – 4.125	3.875– 4.125
No. 1 straw	3.375–3.75 (2)	3.50–3.875 (2)
No. 2 straw	3.375– 3.625	3.50 – 3.875
No. 2 dark	3.25 (1)	3.375 (1)
U.G.I. gas oil	3.25 (2)	3.25 (2)
No. 3 fuel	3.25 – 3.375	3.375– 3.50
No. 6 fuel	$0.65 (1)	
14-16 fuel	$0.85 (1)	$0.85 (1)
MID-WESTERN (Group 3 basis)		
41-43 grav. w.w.	4.125– 4.25	4.125– 4.25
42-44 grav. w.w.	4.25 – 4.375	4.25 – 4.375
Range Oil	3.875 (2)	3.875–4.00 (2)
No. 1 p.w.	3.75 – 4.00	3.875– 4.00
No. 2 straw	3.375– 3.625	3.50 – 3.625
No. 3	3.25 – 3.50	3.25 – 3.50
No. 5	$0.75–$0.85 (2)	$0.75–$0.85 (2)
No. 6	$0.55–$0.60 (2)	$0.55–$0.60 (2)
N. TEX. (For shpt. to Tex. & N. M. dest'ns.)		
41-43 grav. w.w.	4.00 – 4.75	4.00 – 4.75
No. 1 P.W.	3.875 (2)	3.875 (2)
AMARILLO, TEX. (For shpt. to W. Okla. & Tex. differential territory.)		
41-43 grav. w.w.	4.50–4.75 (2)	4.50–4.75 (2)
No. 1 straw	4.00 (2)	4.00 (2)
KANSAS (For Kansas destinations only)		
41-43 grav. w.w.	4.25 (1)	4.25 (1)
42-44 gravity w.w.	4.375– 4.563	4.375– 4.563
No. 1 p.w.	4.00 – 4.25	4.00 – 4.25
No. 6 fuel	$0.65 (2)	$0.65 (2)

(a) One refiner reports quoting "4 to 4.50c" for 72-74 oct., the lower price applying only to shipment into restricted competitive areas.

REFINERY PRICES (Continued)

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Kerosine, Gas & Fuel Oil

(Continued)

Prices Effective	Feb. 17	Feb. 10
ARK. (For shipment to Ark. and La.)		
41-43 grav. w.w.	4.50 (1)	4.50 (1)
No. 1	3.875 (1)	4.00 (1)
No. 2	3.50 (1)	3.625 (1)
No. 3 fuel	3.375 (1)	3.50 (1)
Tractor fuel, for shpt. to Ark. points only	4.25 (1)	4.25 (1)
WESTERN PENNA.		
Bradford-Warren:		
45 grav. w.w.	5.375– 5.50	5.375– 5.50
46 grav. w.w.	5.625 (1)	5.625 (1)
No. 1 fuel	5.25 – 5.375	5.25 – 5.375
No. 2 "	5.125–5.375 (2)	5.125– 5.375
No. 3 "	5.375 (1)	5.125–5.375 (2)
36-40 gravity	5.25 (1)	5.125–5.25 (2)
Other districts:		
45 grav. w.w.	5.125– 5.375	5.125– 5.375
46 grav. w.w.	5.25 – 5.50	5.25 – 5.50
47 grav. w.w.	5.375– 5.625	5.375– 5.625
No. 1 fuel	4.875– 5.00	4.875– 5.00
No. 2 "	4.875– 5.00	4.875– 5.00
No. 3 "	4.625–4.875 (2)	4.625–4.875 (2)
36-40 grav., Pittsburgh dist. prices excluded	4.375– 4.625	4.375– 4.625
CENTRAL MICHIGAN (FOB Central Mich. refinery group basis for shpt. within Mich.; shpts. may originate at plants outside Central group.)		
47-49 gravity w.w.	5.50 – 5.75	5.50 – 5.75
P.W. Distillate	5.50 – 5.65	5.50 – 5.65
No. 3 gas oil, Straw	5.00 – 5.25	5.00 – 5.25
U.G.I. gas oil	4.25 – 4.50	4.25 – 4.50
Fuel Oils (Vis. at 100):		
500-700 Vis.		
300-500 Vis.	3.50 – 3.75	3.50 – 3.75
100-300 Vis.	3.875–4.125 (2)	3.875–4.125 (2)
OHIO (S. O. Ohio quotations for statewide delivery)		
Kerosine	5.75	5.625
CALIFORNIA		
40-43 grav. w.w.	4.50 – 6.00	4.50 – 6.00
San Joaquin Valley:		
Heavy fuel	$0.55 –$0.65	$0.52 –$0.57
Light fuel	$0.65 –$0.75	$0.60 –$0.70
Diesel fuel	3.00 – 4.00	3.00 – 4.00
Stove dist.	3.00 – 5.00	3.00 – 5.00
Los Angeles:		
Heavy fuel	$0.52 –$0.60	$0.52 –$0.57
Light fuel	$0.60 –$0.70	$0.60 –$0.70
Diesel fuel	3.00 – 4.00	3.00 – 4.00
Stove dist.	3.00 – 4.00	3.00 – 4.00
San Francisco:		
Heavy fuel	$0.80	$0.80
Light fuel	$0.90	$0.90
Diesel fuel	4.50	4.50
Stove dist.	5.50	5.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Lubricating Oils

WESTERN PENNA.

Prices are given by Penna. refiners as their quotations to jobbing and compounding trade only. Prices to other refiners generally are lower.

Viscous Neutrals— No. 3 col. Vis. at 70° F.		
200 Vis. (180 at 100°) 420-425 fl.		
0 p.t.	24.50 (1)	24.50 (1)
10 p.t.	23.50 (1)	23.50 (1)
15 p.t.	22.50 (1)	22.50 (1)
25 p.t.	21.00 –22.00	21.00 –22.00
150 Vis. (143 at 100) 400-405 fl.		
0 p.t.	22.50 (1)	22.50 (1)
10 p.t.	21.50 (1)	21.50 (1)
15 p.t.	20.50 (1)	20.50 (1)
25 p.t.	19.00 –20.00	19.00 –20.00
Cylinder Stocks		
Brt. stk., 145-155 vis. at 210°, 540-550 fl., No. 8 col.		
10 p.t.	16.50 (1)	16.50 (1)
15 p.t.	15.50 (1)	15.50 (1)
25 p.t.	14.00 –14.50	14.00
600 S.R. filterable	8.50–9.00 (2)	8.50 –10.00
650 S.R.	9.00	9.00 –11.00
600 fl.	9.50–10.00	9.50 –12.50
630 fl.	11.00 –12.00	11.00 –12.00
MID-CONTINENT (F.o.b. Tulsa)		
Neutral Oils (Vis. at 100° F. 0 to 10 P.P.)		
Pale Oils:		
Vis. Color		
60-85—No. 2	5.25 – 5.75	5.25 – 5.75
86-110—No. 2	5.25 – 6.25	5.25 – 6.25
150—No. 3	8.00 –10.25	8.00 –10.25
180—No. 3	8.50 –10.50	8.50 –10.50
200—No. 3	8.50 –11.00	8.50 –11.00
250—No. 3	10.00 –12.00	10.00 –12.00
280—No. 3	10.50 –13.75	10.50 –13.75
300—No. 3	11.50 –14.25	11.50 –14.25

Lubricating Oils (Cont'd)

Prices Effective	Feb. 17	Feb. 10
Red Oils:		
180—No. 5	8.50–9.50 (2)	8.50–9.50 (2)
200—No. 5	8.50–10.50 (2)	8.50–10.50 (2)
280—No. 5	12.50 (1)	12.50 (1)
300—No. 5	11.00 –12.50	11.00 –12.50
Note: Viscous Neutrals, 15-25 p.p. generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils.		
Bright Stock—Vis. at 210°		
200 Vis. D	18.00 (1)	18.00 (1)
150-160 Vis. D:		
0 to 10 p.p.	13.50 –16.00	13.50 –16.00
10 to 25 p.p.	13.00 –15.50	13.00 –15.50
25 to 40 p.p.	12.50–15.00 (2)	12.50–15.00 (2)
150–160 vis. E	12.50 –15.00	12.50 –15.00
120 Vis. D:		
0 to 10 p.p.	12.50 –15.25	12.50 –15.25
25 to 40 p.p.	14.375 (1)	14.375 (1)
600 S.R. Dark Green	7.00 (2)	7.00 (2)
600 S.R. Olive Green	8.00 – 9.50	8.00 – 9.50
631 S.R.	12.00 (1)	12.00 (1)
Black Oil	4.00–5.50 (2)	4.00–5.50 (2)

SOUTH TEXAS Neutral Oils

Vis. Color		
Pale Oils: (*Vis. at 100°F*)		
100 No. 1½-2½	5.25 – 5.50	5.25 – 5.50
200 No. 2-3	7.25	7.25
300 No. 2-3	7.75	7.75
500 No. 2½-3½	8.50	8.50
750 No. 3-4	8.75	8.75
1200 No. 3-4	8.875	8.875
2000 No. 4	9.00	9.00
Red Oils:		
200 No. 5-6	7.25	7.25
300 No. 5-6	7.75	7.75
500 No. 5-6	8.50	8.50
750 No. 5-6	8.75	8.75
1200 No. 5-6	8.875	8.875
2000 No. 5-6	9.00	9.00

CHICAGO (From Mid-Continent p.l. crude.)

Neutral Oils (Vis. at 100° F. 0 to 10 p.p.)

Pale Oils		
Vis. Color		
60-85—No. 2	7.25 (1)	7.25 (1)
86-110—No. 2	7.25 (1)	7.25 (1)
150—No. 3	8.50 (1)	8.50 (1)
180—No. 3	9.50 (1)	9.50 (1)
200—No. 3	10.00 (1)	10.00 (1)
250—No. 3	11.00 (1)	11.00 (1)
Red Oils:		
180—No. 5	9.50 (1)	9.50 (1)
200—No. 5	9.50 (1)	9.50 (1)
250—No. 5	11.00 (1)	11.00 (1)
280—No. 5	12.00 (1)	12.00 (1)
300—No. 5	12.00 (1)	12.00 (1)
Note: Viscous oils, 15 to 30 p.p. are quoted 0.5c lower; 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., 0.25c lower.		
Unfiltered Steam Refined: (Viscosity at 210°)		
140	8.75 (1)	8.75 (1)
160	9.50 (1)	9.50 (1)
200	10.50 (1)	10.50 (1)
Bright stocks, 160 vis. at 210, No. 8 color:		
0 to 10 p.p.	15.00 (1)	15.00 (1)
15 to 25 p.p.	14.00 (1)	14.00 (1)
30 to 40 p.p.	13.50 (1)	13.50 (1)
E filtered Cyl. Stock	12.50 (1)	12.50 (1)
Note: To obtain prices delivered in Chicago, add 0.25c per gal.		

Natural Gasoline

(Group 3 & Breckenridge prices are to blenders on freight basis shown below. Shipments may originate in any Mid-Continent manufacturing district.)

FOB GROUP 3		
Grade 26-70	2.375 (Sales)	2.375 (Sales)
FOB BRECKENRIDGE		
Grade 26-70	2.00 (Qtns.)	2.00 (Sales)
CALIFORNIA (FOB plants in Los Angeles basin)		
75-85, 350-375 e.p. for blending	4.50 – 4.75	4.50 – 4.75

Naphtha and Solvent

Prices Effective	Feb. 17	Feb. 10
(FOB Group 3)		
Stoddard solvent	5.50 – 5.875	5.50 – 5.875
Cleaners' naphtha	6.00 – 6.375	6.00 – 6.375
V. M. & P. naphtha	6.00 – 6.375	6.00 – 6.375
Mineral spirits	5.00 – 5.375	5.00 – 5.375
Rubber solvent	6.00 – 6.375	6.00 – 6.375
Lacquer diluent	6.25 – 7.375	6.25 – 7.375
Benzol Diluent	7.875– 8.375	7.875– 8.375
WESTERN PENNA.		
Untreated naphtha	5.50 – 5.75	5.50 – 5.75
Stoddard solvent	6.00	6.00
OHIO (S. O. Ohio quotations for statewide delivery):		
V.M.&P. naphtha, D.C. naphtha, Special Varnolene, Varnolene & Sohio solvent	8.75	8.75
Rubber solvent	8.25	8.25

Wax

White Crude Scale:

WESTERN PENNA. (Bbls. C.L., N. Y.)		
122-124 A.m.p.	2.50	2.50 – 2.65
124-126 A.m.p.	2.50 – 2.55	2.50 – 2.65
OKLAHOMA (Bbls. or burlap bags, C.L.)		
124-6 AMP	2.50 (1)	2.75 (1)
131-3 AMP	3.25 (1)	3.25 (1)
CHICAGO (FOB Chicago district refinery of one refiner, in bags or slabs loose, carloads. Melting points are EMP (ASTM) methods; add 3° F. to convert into AMP.)		
Fully refined:		
122-124 (bags only)	5.60	5.60
125-127	5.60	5.60
127-129	5.85	5.85
130-132	6.15	6.15
132-134	6.40	6.40
135-137	7.15	7.15

Petrolatums

WESTERN PENNA. (Bbls., carloads; tank cars, 0.5c per lb. less.)		
Snow White	5.125– 6.125	5.125– 6.125
Lily White	4.375– 5.125	4.375– 5.125
Cream White	3.375– 4.125	3.375– 4.125
Light Amber	2.625– 3.25	2.625– 3.25
Amber	2.375– 2.875	2.375– 2.875
Red	2.125– 2.625	2.125– 2.625

Group 3 Freight Rates

To Division Headquarters Points of Standard Oil Co. of Indiana

	Gasoline Kerosine Cents per Cwt.	Gasoline Kerosine Cents per gal. 6.6 lbs.	Distillate-Gas Oil-Fuel Oil Cents per Cwt.	Distillate-Gas Oil-Fuel Oil Cents per gal. 7.4 lbs.
Chicago, Ill.	40	2.640	32	2.368
Decatur, Ill.	39	2.574	31	2.294
Joliet, Ill.	40	2.640	32	2.368
Peoria, Ill.	39	2.574	31	2.294
Quincy, Ill.	36	2.376	29	2.146
Indianapolis, Ind.	48	3.168	39	2.886
Evansville, Ind.	46	3.036	37	2.738
South Bend, Ind.	49	3.234	**42	**3.108
Detroit, Mich.	64	4.224	51	3.774
Grand Rapids, Mich.	58.5	3.861	**50	**3.700
Saginaw, Mich.	66	4.356	53	3.922
Green Bay, Wis.	51	3.366	41	3.034
Milwaukee, Wis.	43	2.838	34.5	2.553
LaCrosse, Wis.	46	3.036	37	2.738
Minneapolis-St. Paul	46	3.036	37	2.738
Duluth, Minn.	52	3.432	41.5	3.071
Mankato, Minn.	46	3.036	37	2.738
Des Moines, Ia.	36	2.376	29	2.146
Davenport, Ia.	39	2.574	31	2.294
Mason City, Ia.	42	2.772	33.5	2.479
St. Louis, Mo.	33	2.178	26.5	1.961
Kansas City, Mo.	28	1.848	22.5	1.665
St. Joseph, Mo.	28	1.848	22.5	1.665
Fargo, N. D.	63	4.158	50.5	3.737
Minot, N. D.	83	5.478	66.5	4.921
Huron, S. D.	53	3.498	42.5	3.145
Wichita				
From Ponca City	7.5	*0.495	7.5	†0.555
From Tulsa	12.5	*0.825	12.5	†0.925
From Cushing	11	*0.726	11	†0.814

*This rate also includes distillate rate at 6.6 lbs. per gal.

**This rate applies only to residual fuel and gas oil.

†This rate is exclusive of distillate which is based on 6.6 lbs. per gal. from Ponca City, Tulsa and Cushing, Okla., to Wichita. Includes only gas oil and fuel oil.

NOTE: There is no Group 3 rate to Wichita, Kans.

SEABOARD PRICES EXPORT AND COASTWISE

(NOTE—Parenthetical figures after prices indicate number of companies quoting when less than three companies are quoting.)

Atlantic Coast

(Prices are of refiners, FOB their refineries & their tanker terminals, & of tanker terminal operators, FOB their terminals)—Prices Effective Feb. 17

MOTOR GASOLINE

District:	Min. 80 Oct. '39 Research (Max. 2 cc. Lead)	72-74 Oct. (ASTM)	68-70 Oct. (ASTM)	65-66 Oct. (ASTM)	60-64 Oct. (ASTM)
N. Y. Harb.	5.75 – 6.50	5.50 – 6.80	5.50	5.50 (2)	....
N. Y. Harb., barges	5.75 – 7.00	5.25 – 5.50	5.25 (2)	5.25-5.50 (2)	....
Albany	5.70 (1)	6.30	....	....	....
Philadelphia	5.75 – 7.25	5.50 – 7.00	5.50 – 6.75	....	6.50 (1)
Baltimore	5.75 – 7.25	5.50 – 6.75	5.50 – 6.00	5.50 (1)	....
Norfolk	5.75 – 7.25	5.50 – 6.75	6.00 – 6.50	5.50 (1)	....
Wilm'ton	6.00 – 7.05	5.75 – 6.55	6.00 – 6.50	5.50 (1)	....
Char'ston	6.25 – 7.05	5.75-6.60 (2)	5.875-6.50 (2)	5.50 (1)	....
Savannah	6.125– 6.50	6.00	5.875– 6.125	....	5.875 (1)
Jacksonville	6.125– 6.50	6.00	5.875– 6.25	....	5.875 (1)
Miami	6.25-6.50 (1)	6.00 (1)	5.875-6.00 (2)	....	....
Tampa	6.25-6.50 (2)	6.00 (1)	5.875– 6.25	....	....
Pensacola	5.75-6.00 (1)	....	5.50-5.75 (1)	....	....
Mobile	5.75-6.00 (2)	5.50 (1)	5.375-5.625 (2)	....	....
Portland	5.70 (2)	6.40	6.40 (1)	....	....
Boston	5.70 (2)	5.50 – 6.40	5.50 (1)	5.50-5.95 (2)	....
Providence	5.60 – 6.50	6.40	....	....	....

FUEL OILS

	KEROSINE and/or NO. 1 FUEL	No. 2	No. 3	No. 5	No. 6
N. Y. Harb.	4.90 – 5.30	4.30 – 4.70	4.30 – 4.70	$1.55	$1.25
N. Y. Harb., barges	4.80 – 5.20	4.20 – 4.60	4.20 – 4.60	....	....
Albany	5.50	4.90	4.90 (1)	$1.85 (1)	$1.45 (1)
Philadelphia	5.25 – 5.50	4.75	4.75	$1.37 –$1.47	$1.25
Baltimore	5.30	4.70	4.70	$1.47 (1)	$1.25
Norfolk	5.30 – 5.75	4.70	4.70	....	$1.25 (2)
Wilmington	5.25 – 5.75	4.70	....	....	....
Charleston	5.30 – 5.75	4.70 (2)	....	....	$1.20 (2)
Savannah	5.25 – 5.50	....	....	....	$1.20 (1)
Jacksonville	5.25 – 5.50	4.75 (1)	4.75 (1)	....	$1.20 (1)
Miami	5.25-5.50 (2)	....	....	....	....
Tampa	5.25 – 5.50	4.75 (1)	....	....	$1.15 (1)
Pensacola	5.125-5.375 (1)	....	....	....	....
Mobile	4.875 – 5.125	....	....	....	....
Portland	5.40	4.90	4.90	$1.85 (1)	$1.25 –$1.45
Boston	5.30	4.80	4.80	$1.55 (2)	$1.25
Providence	5.30	4.80	4.80	$1.50 –$1.55	$1.25

	Bunker C Fuel Ships' bunkers (Ex Lighterage)	Diesel Oil Ships' bunkers (Ex Lighterage)	Diesel Oil Shore Plants	Gas House Gas Oil 28-34 Gravity
N. Y. Harbor	$1.25	$1.75	4.30	4.40
Albany	$1.45 (1)	$2.05	4.90	5.10
Philadelphia	$1.25	$1.95	....	....
Baltimore	$1.25	$1.95	4.70	4.70
Norfolk	$1.25	$1.95	4.70	4.70
Charleston	$1.20	$1.95	4.70	4.70
Savannah	$1.20 (1)	$1.95 –$1.995	....	....
Jacksonville	$1.20	$1.95 –$1.995	....	....
Tampa	$1.15	$1.95 –$1.995	....	....
Portland	$1.25 –$1.45	$2.05	4.90	5.00
Boston	$1.25	$1.95	4.80	4.90
Providence	$1.25	$1.95	4.80	4.90

New York Export Lubes

(Penna. Products in bbls. FAS New York)

Prices Effective	Feb. 17	Feb. 10
Bright stock:		
Light, 25 p.t.	22.00 (1)	22.00 (1)
Neutral oil:		
200 3 color, 25 p.t.	....	....
150 3 color, 25 p.t.	25.50 (1)	25.50 (1)
600 s.r., unfilt.	17.50 (1)	17.00 (1)
650 s.r., unfilt.	18.00 (1)	17.50 (1)
600 fl. s.r.	18.50 (1)	18.00 (1)
630 fl., s.r.	20.00 (1)	20.00 (1)

Wax

(Melting points are AMP, 3° higher than EMP. Export prices FAS c.l. Domestic prices FOB, in bags, c.l. Scale solid; fully refined slabs.)

Prices Effective Feb. 17

	New Orleans Export	N. Y. Domestic	N. Y. Export
Crude Scale:			
124-6 Yellow	2.50 (1)	....	2.50 (1)
122-4 White	....	2.50-2.60	2.50-2.60
124-6 White	2.50 (2)	2.50-2.60	2.50-2.60
Fully Refined:			
123-5	....	5.60 (a)	5.60 (2)
125-7	5.60(1)	5.60 (a)	5.60
128-30	6.15(1)	5.60-5.70	5.60
130-2	6.15 (1)	5.85	5.85
133-5	6.40 (1)	6.15	6.15
135-7	7.15(1)	6.40(2)	6.40
		....	
108-11 White Match wax (tight bbls.)			3.00 (1)

Naphtha

Prices Effective Feb. 17	V.M.&P. Naphtha	Mineral Spirits
Baltimore	9.50	8.00
New York Harbor	9.00 – 9.50	8.00 – 8.50
Philadelphia district	10.00	8.00 – 9.00
Boston	9.00	8.75 – 9.25
Providence	9.00	8.75

Pacific Export

(Quotations at seaboard, Los Angeles, cargo lots, except where otherwise noted.)

Prices Effective	Feb. 17	Feb. 10
375 e.p. blend, 70 oct.	4.50 – 5.125	4.50 – 5.125
390 e.p. blend, 68 oct.	4.375– 4.625	4.375– 4.625
390 e.p. blend, 66 oct.	4.375– 4.625	4.375– 4.625
400 e.p. blend, 65 oct. min.	4.25 – 4.375	4.25 – 4.375
U. S. Motor, under 65 octane	4.125– 4.25	4.125– 4.25
38-40 grav. w.w. kero., 150 fire point	4.50 – 5.00	4.50 – 5.00
41-43 grav., w.w. kero.	4.50 – 5.00	4.75 – 5.00
44 grav., w.w. kero	5.00 – 5.50	5.00 – 5.50
Diesel fuel, 24 & above	$1.25 –$1.30	$1.25 –$1.30
Diesel fuel, under 24	$1.15 –$1.25	$1.15 –$1.25
30-34 grav. diesel (gas oil) Pac. Spec. 200	$1.25 –$1.35	$1.25 –$1.35
Grade C fuel, Pac. Spec. 400	$0.625-$0.75	$0.60 –$0.65
In Ship's Bunkers, or deep tank lots:		
Diesel fuel, Pac. Spec. 200	$1.35 –$1.45	$1.35 –$1.45
Grade C fuel, Pac. Spec. 400	$0.70 –$0.75	$0.65 –$0.75

Pacific Export (Cont'd)

Prices Effective	Feb. 17	Feb. 10
Cased Goods: (Per case)		
U. S. Motor	$1.35 –$1.45	$1.35 –$1.45
375-400 e.p. blend, 65 oct. & above	$1.50 –$1.60	$1.50 –$1.60
400 e.p. blend, under 65 oct.	$1.40 –$1.50	$1.40 –$1.50
40-43 grav. w.w. kero., 150 fire point	$1.30 –$1.40	$1.30 –$1.40
Kero., p.w.	$1.25 –$1.35	$1.25 –$1.35

Tanker Rates

(Approximate rates. Cents per bbl.)

Gulf-N. Atlantic: (not E. of N.Y.)	Last Paid	Owners Ask
Hvy. Crude & fuel (10 to 19.9 gravity)	50	..
Light Crude, (30 grav. or Lighter)	46	..
Gasoline	36	..
Kerosine	38	..
No. 2 Fuel	40	..

Gulf Coast

(Prices for sales made or firm offers reliably reported for sales pending in cargoes FOB ship at Gulf, for minimum of 20,000 bbls. Prices are by refiners only to other refiners, export agents, or to large tanker terminal operators at the customary trade specifications noted.)

Prices Effective Feb. 17

Motor Gasoline Domestic	
Min. 80 oct. '39 Research, max. 2cc lead	4.50 – 5.25
60-62, Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	4.00 – 5.00
70 oct. unleaded "	4.375
68 oct. " "	4.25
65 oct. " "	4.00 – 4.25
60 oct. " "	3.875– 4.00
41-43 w.w. kerosine	3.50 – 4.00
No. 2 fuel	3.00 – 3.25
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	3.125– 3.25
43-47 " "	3.125– 3.25
48-52 " "	3.125– 3.625
53-57 " "	3.50
58 & above diesel index	3.75
Diesel Oil, ships' bunkers (ex-lighterage)	$1.40 –$1.70
Bunker C, " "	$0.80 –$0.85
Bunker C, cargoes	$0.80 –$0.85
Motor Gasoline Export	
60-62 Gravity, Max. 400 e.p.	
72-74 oct. leaded (ASTM)	4.00 – 5.00
70 oct. unleaded "	4.375
68 oct. " "	4.25
65 oct. " "	4.00 – 4.25
60 oct. " "	3.875– 4.00
61-63 Gravity, Max. 390 e.p.	
72-74 oct. leaded (ASTM)	4.00 – 4.375
60 oct. unleaded "	3.875– 4.00
64-66 Gravity, Max. 375 e.p.	
72-74 oct. leaded (ASTM)	4.00 – 4.375
60 oct. unleaded "	3.875– 4.00
41-43 w.w. kerosine	3.50 – 4.00
Gas Oil—Less than ½ of 1% sulfur.	
Below 43 diesel index	3.125– 3.25
43-47 " "	3.125– 3.25
48-52 " "	3.125– 3.625
53-57 " "	3.50
58 & above diesel index	3.75

MID-CONTINENT LUBES

(At Gulf; in packages, FAS.; in bulk FOB terminals)

	Feb. 17 New Steel Drums	Feb. 17 Bulk
200 vis. D. 210 brt. stock	25.50 –25.80 (2)	19.80 (2)
150 vis. D 210 brt. stock 0-10 p.p.	21.50–21.80 (2)	15.80 (2)
10-25 p.p.	21.00 (1)	15.30 (1)
100 vis. D 210 brt. stock 0-10 p.p.	21.00 (1)	15.30 (1)
10-25 p.p.	20.50 (1)	14.80 (1)
200 vis. No. 3 col. neutral: 0-10 p.p.	17.00 (1)	11.30 (1)

SOUTH TEXAS LUBES

(Vis. at 100°, c. t. 0, blk exprt. shp., FOB terminals)

Unfiltered Pale Oils: Vis.	Color	Feb. 17	Feb. 10
100	No. 3	6.00	6.00
200	No. 3	7.50	7.50
300	No. 3	8.00	8.00
500	No. 3½	9.00	9.00
750	No. 4	9.50	9.50
1200	No. 4	10.00	10.00
2000	No. 4	10.25	10.25
Red Oils:			
Vis.	Color		
100	No. 5-6	6.00	6.00
200	No. 5-6	7.50	7.50
300	No. 5-6	8.00	8.00
500	No. 5-6	9.00	9.00
750	No. 5-6	9.50	9.50
1200	No. 5-6	10.00	10.00
2000	No. 5-6	10.25	10.25

(a) 0.4c discount generally given for slabs loose.

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes:** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb. 21, 1940.*

These prices in effect Feb. 17, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. New Jersey

Esso (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
*Atlantic City, N. J.	6.5	8.1	4.5	7.5
*Newark, N. J.	6.5	8.1	4.5	7.5
Annapolis, Md.	7.35	8.85	5.5	9.5
Baltimore, Md.	6.75	8.25	5.5	8.6
Cumberland, Md.	8.15	9.65	5.5	10
Washington, D. C.	7	8.5	3.5	9.5
Danville, Va.	7.95	10.45	6.5	9
Norfolk, Va.	6.75	9.25	6.5	10.5
Petersburg, Va.	7.05	9.55	6.5	11.2
Richmond, Va.	7.05	9.55	6.5	11
Roanoke, Va.	8.25	10.75	6.5	11
Charleston, W. Va.	7.55	10.05	6.5	11.5
Parkersburg, W. Va.	6.85	9.35	6.5	11.2
Wheeling, W. Va.	7.85	10.35	6.5	11.8
Charlotte, N. C.	8.9	8	7.5	9.8
Hickory	9.5	10.95	7.5	9.7
Mt. Airy, N. C.	9.3	8.5	7.5	10.8
Raleigh, N. C.	8.65	9.5	7.5	10.1
Salisbury, N. C.	8.95	8	7.5	10.5
Charleston, S. C.	6.75	9.25	7.5	....
Columbia, S. C.	7.6	10.1	7.5	....
Spartanburg, S. C.	8.3	10.8	7.5	12

	Mineral Spirits T.W.	V.M.&P. T.W.
Newark, N. J.	10.5	14.5
Baltimore, Md.	15	....
Washington, D. C.	15	....

Fuel Oils—T.W.	No. 1	No. 2	No. 3
Atlantic City, N. J.	7.5	6.7	6.7
Newark	7.5	6.3	6.3
Annapolis, Md.	....	7	....
Baltimore	7.6	7	6.5
Washington, D. C.	7.8	7.2	7.2
Norfolk, Va.	7.5	6.5	6.5
Petersburg	7.7	6.7	....
Richmond	7.7	6.7	6.7
Charlotte, N. C.	8.8	8	....
Hickory	....	7.25	....
Raleigh	9.1	7.7	....
Charleston, S. C.	....	6.6	....
Columbia	....	7.5	....
Spartanburg	9.8	8	....

*Effective Sept. 19, 1940, minimum retail resale price of 10.4c posted thru New Jersey.

Discounts:

Esso gasoline—to undivided dealers, 0.5c off dealer t.w. price, thru territory, except New Jersey. While above posted prices continue at Atlantic City and Newark, dealers will pay net price of 7.5c per gal. for Esso; dealers having pumps marked only Esso, Esso Extra and Standard White gasoline will pay 7c per gal. for Esso.

Kerosine—1c off t.w. price for 25 gals. or more, under contract thru territory (Baltimore city contract not necessary) except no discount in state of New Jersey.

Naphthas—To buyers taking following quantities at one time: Newark, 2c per gal. on 200 gals. or more, less than 200 gals. 0.5c higher price; Baltimore, 2c off on 25 to 100 gals. and 3c on over 100 gals.; Washington, 2c off to contract buyers.

Socony-Vacuum Oil Co., Inc.

Socony Mobilgas (*Regular Grade*)

	Com. T.C.	Com. Cons. T.W.	Undiv. Dlr. T.W.	Gasoline Taxes
New York City:				
Manhattan & Bronx	7.0	6.7	7.2	*5.5
Kings & Queens	7.0	6.7	7.2	*5.5
Richmond	7.0	6.7	7.2	*5.5
Albany, N. Y.	7.2	6.9	7.4	5.5
Binghamton, N. Y.	8	8	8.5	5.5
Buffalo, N. Y.	7.5	7.5	8	5.5
Jamestown, N. Y.	7	7.5	8	5.5
Plattsburg, N. Y.	8.2	7.9	8.4	5.5
Rochester, N. Y.	7.7	7.7	8.2	5.5
Syracuse, N. Y.	7	7	7.2	5.5
Bridgeport, Conn.	6.6	6.3	6.8	4.5
Danbury, Conn.	7.4	7.1	7.6	4.5
Hartford, Conn.	6.8	6.5	7	4.5
New Haven, Conn.	6.6	6.3	6.8	4.5
Bangor, Me.	7.1	6.8	8.2	5.5
Portland, Me.	6.7	6.4	7.2	5.5
Boston, Mass.	6.4	6.1	6.9	4.5
Concord, N. H.	8.3	8	8.5	5.5
Lancaster, N. H.	9.2	8.9	9.4	5.5
Manchester, N. H.	7.9	6.8	7.3	5.5
Providence, R. I.	6.4	6.4	7.4	4.5
Burlington, Vt.	6.3	6	6.5	5.5
Rutland, Vt.	7.8	7.5	8	5.5

	Mineral Spirits T.W.	V.M.&P. T.W.
Buffalo, N. Y.	9.4	10.1
†New York City	8.5	9.2
Rochester, N. Y.	10.5	11.2
Syracuse, N. Y.	11.3	....
Boston, Mass.	11	11
Bridgeport, Conn.	11.5	12
Hartford, Conn.	11	11.5
Providence, R. I.	11	12

	Kerosine Yard	Kerosine TW	Mobilfuel Diesel TC	Mobilfuel Diesel TW	Mobilheat Fuel Yard	Mobilheat Fuel TW
New York:						
Manhat'n & Bronx	....	7.6	....	6.5	....	6.1
Kings & Queens	5.1	7.6	....	6.5	4.5	6.1
Richmond	5.2	7.8	....	6.5	4.6	6.4
Albany	5.7	7.8	5.2	7.2	5.1	6.8
Binghamton	7	9	....	....	6.3	7.8
Buffalo	6.3	8.1	5.8	7.8	5.9	7.4
Jamestown	5.9	8	....	....	5.9	7
Plattsburg	6.3	8.3	....	....	5.7	7.2
Rochester	6.8	8.9	....	....	6.1	7.4
Syracuse	6.8	8.8	....	....	6.2	7.7
Conn.:						
Bridgeport	5.6	7.5	....	....	4.9	6.2
Danbury	6.1	8.0	....	....	5.4	6.5
Hartford	5.2	7.5	....	7.6	4.7	6.9
New Haven	5.3	7.4	....	....	4.7	6.5
Maine:						
Bangor	6	8	....	....	5.5	7
Portland	5.8	8	5.5	7.5	5.3	6.8
Mass.:						
Boston	5.7	8	5.4	7.4	5.2	6.8
N. H.:						
Concord	6.5	8.5	....	....	6.3	7.8
Lancaster	7.6	9.6	....	....	7.3	8.8
Manchester	6.6	8.9	....	....	6	7.5
R. I.:						
Providence	5.7	8	5.4	7.4	5.2	6.7
Vermont:						
Burlington	6.3	8.3	....	....	5.6	7
Rutland	6.5	8.5	....	....	5.8	7.3

*Plus 2% city sales tax computed at time of each sale.

†Prices apply to consumers only in quantities over 1000 gals. annually; for quantities under 1000 gals. annually, add 0.5c per gal.

Discounts: Gasoline—To undivided dealers, 0.5c less than divided dealer t.w. Diesel—On t.w. deliveries, 0.5c for at least 400 gals.; 1c for full tank truck.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial T.C.	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	7	8	5.5	10
Pittsburgh	7.5	9.5	5.5	10.5
Allentown	7.5	9	5.5	10.5
Erie	7	9.5	5.5	10
Scranton	7.5	9	5.5	10.5
Altoona	7.5	9.5	5.5	10.5
Emporium	7.5	9.5	5.5	10.5
Indiana	7.5	9.5	5.5	10.5
Uniontown	7.5	9.5	5.5	10.5
Harrisburg	7.5	9	5.5	10.5
Williamsport	7.5	9	5.5	10
Dover, Del.	....	8.5	5.5	10.5
Wilmington, Del.	....	8	5.5	10
Boston, Mass.	....	7.4	4.5	8.1
Springfield, Mass.	....	7.2	4.5	9.1
Worcester, Mass.	....	7.5	4.5	8
Fall River, Mass.	....	7.9	4.5	8.3
Hartford, Conn.	....	7.5	4.5	8.6
New Haven, Conn.	....	7.3	4.5	8.6
Providence, R. I.	....	7.9	4.5	8.3
Atlantic City, N. J.	....	7.5	4.5	7.5
Camden, N. J.	....	7.5	4.5	7.5
Trenton, N. J.	....	7.3	4.5	7.5
Annapolis, Md.	....	8.85	5.5	9.6
Baltimore, Md.	....	8.25	5.5	8.6
Hagerstown, Md.	....	9.35	5.5	10
Richmond, Va.	....	9.55	6.5	11
Wilmington, N. C.	....	9.35	7.5	9.4
Brunswick, Ga.	....	7.5	7.5	*9
Jacksonville, Fla.	....	7.5	8.5	10

	Mineral Spirits T.W.†	V.M.&P. T.W.†
Philadelphia, Pa.	12	14.5
Lancaster, Pa.	13.5	16
Pittsburgh, Pa.	14.5	14.5

Fuel Oils—T.W.	1	2	3	5	6
Phila., Pa.	8	6.75	6.75	4.25	3.50
Allentown, Pa.	8.5	7	7	....	....
Wilmington, Del.	8.00	6.75	6.75	....	....
Springfield, Mass.	9.1	7	7	....	....
Worcester, Mass.	8	7	7	....	....
Hartford, Conn.	8.6	6.9	6.9	....	....

*Does not include 1c Georgia kerosine tax.

†Mineral Spirits prices also apply to Stoddard Solvent; V.M.&P. prices also apply to Light Cleaners Naphtha.

Discounts:

Gasoline—to undivided dealers, 0.5c off dealer t.w., except Georgia & Florida dealer t.w. and undivided dealer t.w. prices are same.

Kerosine—Thru Penna. & Delaware, 2c off t.w. price on t.w. deliveries of 25 gals. or more at one time.

Naphthas—Philadelphia, 200 gals. or more at one time, 2c off, Lancaster, contract buyers taking 1000 gals. or more per year, one drum up, 2c off; non-contract buyers, 200 gals. or more at one time, 2c off. Pittsburgh, 500 gals. or more at one time, 2c off.

S. O. Ohio††

***Sohio X-70 Gasoline (*Regular Grade*)**

	Consumer T.W	**Reseller	‡S.S.	Gasoline Taxes	†Kerosine T.W
Ohio, Statewide	10.5	9	12.5	5.5	8
Akron	10.5	7.5	9.5	5.5	8
Cincinnati	10.5	7.5	10	5.5	8
Cleveland	10.5	8	11	5.5	8
Columbus	10.5	8	11	5.5	8
Dayton	10.5	7	9.5	5.5	8
Marietta	10.5	8	10.5	5.5	8
Portsmouth	10.5	8.5	11.5	5.5	8
Toledo	10.5	7.5	10	5.5	8
Youngstown	10.5	8	11	5.5	7.5

Aviation Gasoline—Statewide

	Consumer T.W.	Gasoline Taxes
Sohio Aviation	14.5	5.5
Esso Ethyl Aviation 74 Oct.	15.5	5.5
Esso Ethyl Aviation 80 Oct.	16.5	5.5
Esso Ethyl Aviation 87 Oct.	17.5	5.5
Esso Ethyl Aviation 90 Oct.	17.5	5.5
Esso Ethyl Aviation 100 Oct.	24.5	5.5

	†Naphthas—T.W. Statewide	Lucas County
S.R. Solvent	12.75	12.75
D.C. Naphtha	13.25	13
V.M.&P. Naphtha	13.25	13
Varnolene	13.25	13
Sohio Solvent	13.25	13

Fuel Oils—T.W.	No. 1	No. 2	No. 3	No. 4
Ohio, Statewide	8.0	8.0	7.5	....
Toledo	7.5	7.5	7.0	....
Cleveland	9.5	9.5	9.0	6.75

*Renown (third-grade) prices are same as X-70 unless otherwise noted.

**Except authorized agents.

†Kerosine prices are ex 1c state tax. Naphtha prices are ex 1.5c federal & 4c state tax.

‡Prices at company-operated stations.

††Statewide prices are subject to exceptions other than those shown.

Discounts:

Esso aviation—on contract to hangar operators and resellers, 2c off consumer t.w.

Fuel Oils—Statewide and Toledo prices are for t.w. deliveries of less than 50 gals.; t.w. and drum deliveries of over 50 gals. are 0.5c less. Cleveland Nos. 1, 2, and 3 prices are for bulk deliveries of 5 to 99 gals.; 100 gals. and over are 2c less. Cleveland No. 4 price is for full compartment hose dump only.

Naphthas—to contract consumers off t.w. prices—Statewide: 300 to 999 gals., 0.5c; 1000 to 2499 gals., 0.75c; 2500 to 4999 gals., 1c; 5000 or more gals., 1.5c. Lucas County: Less than 50 gals., tank wagon price; 50 to 249 gals., 0.5c; 250 to 499 gals., 1c; 500 gals. or over, 1.5c.

S. O. Kentucky

Crown Gasoline (*Regular*)

Standard (*Third Grade*)

	†Net Dealer Crown	Standard	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	7	6.5	6.5	9
Lexington, Ky.	9	7	6.5	9
Louisville, Ky.	8.5	6.5	6.5	8.5
Paducah, Ky.	6	5.5	6.5	8.5
Jackson, Miss.	7.5	6.5	7.5	*8.5
Vicksburg, Miss.	8	7	7.5	*8
Birmingham, Ala.	8	7	*8.5	8
Mobile, Ala.	6	5	*9.5	8
Montgomery, Ala.	8.5	7.5	*9.5	*9
Atlanta, Ga.	7.5	6.5	7.5	*8
Augusta, Ga.	9	8	7.5	*8.5
Macon, Ga.	9	8	7.5	*8
Savannah, Ga.	8	7	7.5	*8
Jacksonville, Fla.	7.5	6.5	8.5	8
Miami, Fla.	7.5	6.5	8.5	8
Pensacola, Fla.	7.5	6.5	*9.5	8
Tampa, Fla.	7.5	6.5	8.5	8

*Taxes: In tax column are included these city and county gasoline taxes: Mobile, 2c city; Birmingham 1c city; Montgomery, 1c city and 1c county; Pensacola 1c city. Georgia and Montgomery, Ala. have 1c kerosine tax, Mississippi 0.5c, not included in above prices.

†Consumer t.w. prices are same as net dealer prices.

S. O. Indiana

Red Crown (*Regular Grade*)

Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown T.W.	Stanolind T.W.	Gasoline Taxes	Kerosine T.W.
Chicago, Ill.	10.1	8.1	6.4	4.5	10
Decatur, Ill.	10.1	8.6	6.2	4.5	8.5
Joliet, Ill.	11.1	9.6	6.7	4.5	10
Peoria, Ill.	11.1	8.7	8.1	4.5	10
Quincy, Ill.	10.9	9.4	8.1	4.5	9.8
Indianapolis, Ind.	11.3	9.3	8.9	5.5	*10
Evansville, Ind.	11.1	9.6	8	5.5	*9.8

(Continued on next page)

TANK WAGON PRICES

Commercial or consumer tank car, tank wagon, dealer, and service station prices for gasoline **do not include taxes:** *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1.5c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices also do not include taxes; kerosine taxes where levied are indicated in footnotes. Dealer discounts are shown in footnotes; for commercial consumer discounts, see NPN for Feb. 21, 1940.*

These prices in effect Feb. 17, 1941 as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. Indiana (Cont'd)

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown	Stano-lind	Gaso-line Taxes	Kero-sine T.W.
South Bend, Ind.	11.3	9.8	8.8	5.5	*10
Detroit, Mich.	9.6	8.1	7.1	4.5	8.1
Grand Rapids, Mich.	9.8	8.3	8	4.5	9.1
Saginaw, Mich.	10.4	8.9	8.4	4.5	9.1
Green Bay, Wis.	11.9	10.4	7.5	5.5	10.8
Milwaukee, Wis.	11.3	9.8	9.3	5.5	10.2
La Crosse, Wis.	11.5	10	9.5	5.5	10.4
Minneapolis-St. Paul	11.5	9.7	7.3	4.5	10.4
Duluth, Minn.	11.9	10.4	9.9	4.5	10.8
Mankato, Minn.	11.5	10	8.5	4.5	9.5
Des Moines, Ia.	10.9	9.4	7.9	4.5	*9.8
Davenport, Ia.	11.1	9.6	9.1	4.5	*10
Mason City, Ia.	11.3	9.8	6.9	4.5	*10.2
St. Louis, Mo.	10.2	8.7	7	*4.5	9.6
Kansas City, Mo.	10.4	7.4	6.4	*4.5	8.6
St. Joseph, Mo.	10.4	8.5	7.5	*4.5	8.4
Fargo, N. D.	12.7	11.2	9	5.5	11.6
Huron, S. D.	12	10.5	10	5.5	10.9
Wichita, Kans.	9.3	7.8	5.5	4.5	7.2

	Stanavo Aviation 73 Octane		
Chicago, Ill.	14.9		
Detroit, Mich.	16.5		4.5
Milwaukee, Wis.	15.1		5.5
Minneapolis, Minn.	15.3		4.5
St. Louis, Mo.	14.5		*4.5
Kansas City, Mo.	14.1		*4.5
Fargo, N. D.	16.5		5.5
Huron, S. D.	15.8		5.5

(Prices are base prices before discounts)

	Oleum Spirits	V.M.&P. Naphtha	Stani-sol	*Taxes
Chicago	12.7	13	12.4	4.5
Detroit	15.2	14.2	15.7	4.5
K. C., Mo.	12.8	13.8	13.3	1.5
St. Louis	13.2	14.2	12.4	1.5
Milwaukee	13.8	14.8	14.3	5.5
Minneap'lis	14	15	12.7	4.5

	Fuel Oils T.W. Standard Heater Oil
Chicago:	
1-99 gals.	9
100-149 gals.	8
150 gals. & over	7.5

	Stanolex No. 1	Stanolex Furnace Oil
1-99 gals.	8.5	8.5
100-399 gals.	7.5	7.5
400 gals. & over	7	7

	Stanolex Fuel Oil A	Stanolex Fuel Oil B
1-399 gals.	6	6
400-799 gals.	5	5
800 gals. & over	4.75	4.75

	Stanolex Bunker C Fuel Oil
1-999 gals.	4.75
1000 gals. & over	3.75

Other Points:	Stanolex No. 1	Stanolex Furnace Oil
Indianapolis		
1-99 gals.	...	*8.5
100 gals. & over	...	*7.5
Detroit		
1-99 gals.	...	7.6
100 gals. & over	...	6.6
Milwaukee		
1-99 gals.	9.2	8.7
100 gals. & over	8.2	7.7
Minneapolis		
1-99 gals.	8.5	8.5
100 gals. & over	.	7.5
100-199 gals.	8	...
200 gals. & over	7.5	...
St. Louis		
1-99 gals.	8	7.5
100 gals. & over	7	6.5
Kansas City		
1-49 gals.	7.8	...
50 gals. & over	6.8	...
1-99 gals.	...	7.8
100 gals. & over	...	6.8

***Taxes:** In gasoline tax column are included these city taxes—Kansas City, St. Joseph, and St. Louis, 1c. Indiana kerosine and fuel oil prices are ex 4c state tax: Iowa kerosine prices are ex 3c state tax. In naphtha tax column are included 1.5c federal tax and state taxes.

†Prices for small-lot deliveries range up to 2c higher than above prices.

S. O. Nebraska

Standard Red Crown Gasoline
(Regular Grade)

	T.W.	Dealer	Gaso-line Taxes	Kero-sine T.W.
Omaha	10.9	9.4	6.5	9.8
McCook	11	7.9	6.5	9.5
Norfolk	11	9.4	6.5	9.9
North Platte	11.3	9.5	6.5	10.2
Scottsbluff	11.4	8.5	6.5	10.8

S. O. Louisiana

Esso Gasoline (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gaso-line Taxes	Kero-sine T.W.
New Orleans, La.	5.75	8.25	8.5	*9
Baton Rouge, La.	6.25	8.75	8.5	*9.5
Alexandria, La.	6.25	8.75	8.5	*9.5
Lafayette, La.	6.5	9	8.5	*9
Lake Charles, La.	6.25	8.75	8.5	*9
Shreveport, La.	5.5	8	8.5	*9
Knoxville, Tenn.	9.5	11.5	8.5	12.5
Memphis, Tenn.	7.5	9.5	8.5	11
Chattanooga, Tenn.	9	8.85	8.5	12
Nashville, Tenn.	8.5	9	8.5	11
Bristol, Tenn.	9.75	10.25	8.5	12
Little Rock, Ark.	6.75	8.5	8	10

*Louisiana kerosine prices are ex 1c state tax.

Discounts:

Esso Gasoline—To individed dealers, 0.5c off dealer t.w.

Humble Oil & Refining Co.

Humble Motor Fuel (Regular Grade)
Thriftane (*Third Grade*)

	Humble *Tank Wagon	Humble Retail	Thriftane *Tank Wagon	Thriftane Retail	Gasoline Taxes
Dallas, Tex.	6	10	5	8	5.5
Ft. Worth, Tex.	6	10	5	8	5.5
Houston, Tex.	7	11	5	8	5.5
San Antonio, Tex.	7	11	5	8	5.5

	Kerosine *Tank Wagon	Kerosine Retail
Dallas, Tex.	6	10
Ft. Worth, Tex.	7	11
Houston, Tex.	8	11
San Antonio, Tex.	7	11

	74 Oct. Aviation Gasoline, Clear
FOB Baytown, Tex.	8.5

*To all classes of dealers & consumers.

The Texas Co.

	Gasoline—Dealer T.W. Fire-Chief (*Regular*)	Indian (*3rd Grade*)	Gaso-line Taxes
Dallas, Tex.	6	5	5.5
Ft. Worth, Tex.	6	5	5.5
Wichita Falls, Tex.	7	5	5.5
Amarillo, Tex.	7	5	5.5
Tyler, Tex.	7	5	5.5
El Paso, Tex.	9	8	5.5
San Angelo, Tex.	7	5	5.5
Waco, Tex.	6.5	4.5	5.5
Austin, Tex.	7	5	5.5
Houston, Tex.	7	5	5.5
San Antonio, Tex.	7	5	5.5
Port Arthur, Tex.	7	5	5.5

Continental Oil

	Conoco Bronz-z-z (*Regular*) †Tank Wagon	De-mand (*3rd Grade*)	Gaso-line Taxes	Kero-sine T.W.
Denver, Col.	9	8	5.5	10.5
Grand Junction, Col.	11	10	5.5	12
Pueblo, Col.	10	8	5.5	9
Casper, Wyo.	11	10	5.5	11.5
Cheyenne, Wyo.	6.5	5.5	5.5	11
Billings, Mont.	10	9	6.5	12
Butte, Mont.	9	8	6.5	13
Great Falls, Mont.	9	8	6.5	12
Helena, Mont.	9	8	6.5	12.5
Salt Lake City, Utah	10.5	9.5	5.5	14
Boise, Ida.	12.1	11.1	6.5	16
Twin Falls, Ida.	13.1	12.1	6.5	16.5
Albuquerque, N. M.	9	8	*7	9.5
Roswell, N. M.	7	6	*7	8
Santa Fe, N. M.	9.5	8.5	*7.5	9.5
Ft. Smith, Ark.	8	5.75	*5.5	6.5
Little Rock, Ark.	8	6	8	8
Texarkana, Ark.	8	6	*5.5	6
Muskogee, Okla.	8	7	5.5	7
Oklahoma City, Okla.	6	5.5	5.5	6.5
Tulsa, Okla.	7	6	5.5	6

*Taxes: In gasoline tax column are included these city taxes—Albuquerque, & Roswell, 0.5c; Santa Fe, 1c, Texas 4c state tax applies within city limits of Texarkana, Ark.; Okla. 4c state tax applies within city limits of Ft. Smith, Ark.

†To consumers and dealers, except at Cheyenne where consumer t.w. prices are 2.5c above dealer t.w. prices shown above, and Oklahoma City where consumer t.w. prices are 1c and 0.5c above Bronz-z-z and Demand dealer t.w. prices, respectively, shown above.

S. O. California

Standard Gasoline (*Regular Grade*)
Flight Gasoline (*Third Grade*)

	Standard Tank Truck	Standard Retail	Flight Tank Truck	Flight Retail	Gaso-line Taxes
San Francisco, Cal.	12	13	10	11	4.5
Los Angeles, Cal.	11.5	12.5	9.5	10.5	4.5
Fresno, Cal.	13	14	11	12	4.5
Phoenix, Ariz.	14	15	11	12	6.5
Reno, Nev.	14	15	12	13	5.5
Portland, Ore.	12.5	13.5	10.5	11.5	6.5
Seattle, Wash.	12.5	13.5	10.5	11.5	6.5
Spokane, Wash.	14	15	12	13	6.5
Tacoma, Wash.	12.5	13.5	10.5	11.5	6.5

	Stanavo Tank Truck	Aviation Gasoline Taxes	Kerosine Tank Truck
San Francisco, Cal.	15.5	4.5	11.5
Los Angeles, Cal.	15	4.5	10
Fresno, Cal.	16.5	4.5	12.5
Phoenix, Ariz.	17.5	6.5	*12.5
Reno, Nev.	17.5	5.5	13.5
Portland, Ore.	16	6.5	13.5
Seattle, Wash.	16	6.5	13.5
Spokane, Wash.	19	6.5	16.5
Tacoma, Wash.	16	6.5	13.5

*Taxes: Phoenix kerosine price is ex 5c state tax.

Discounts:

To Resale & Commercial Consumers—3c off posted tank truck tax included price on Standard & Stanavo Aviation, 2c off on Flight. Deliveries less than 40 gals. to commercial consumer trade, 1c a gal. above posted tank truck tax included price, except single deliveries to Marine trade only which are billed at posted tank truck tax included price less 3c for Standard & Stanavo Aviation, and less 2c for Flight.

Kerosine—Tank car and truck & trailer deliveries, 3c off posted tank truck price; plant stem deliveries to jobbers, 2.5c off posted tank truck price.

Canada

PRICES OF IMPERIAL OIL LTD.
Per Imperial Gallon, which is 1.2 U. S. Gallons
3-Star Imperial Gasoline (*Regular Grade*)

	Gasoline T.W.	Gasoline Taxes	Kero-sine T.W.
Hamilton, Ont.	16.5	8	17
Toronto, Ont.	16.5	8	17
Brandon, Man.	21	7	23
Winnipeg, Man.	20.5	7	22.5
Regina, Sask.	18	7	20
Saskatoon, Sask.	21	7	23
Edmonton, Alta.	18.9	7	20.9
Calgary, Alta.	16	7	18
Vancouver, B. C.	16	7	23
Montreal, Que.	16	8	16.5
St. John, N. B.	14.50	10	18
Halifax, N. S.	14.50	10	18

Discounts: Gasoline—Maritime Provinces—undivided & divided dealers, t.w. price; British Columbia—undivided and divided dealers, 2c off t.w. price; balance of territory—undivided dealers, 1c off t.w. price, divided dealers, t.w. price.

Tank Wagon Price Changes

(These changes have been made in price tables)

S. O. New Jersey—Esso Gasoline:
Salisbury dealer up 1c Feb. 7.
Raleigh dealer up 1c Feb. 11.

S. O. New Jersey—Esso Kerosine:
Atlantic City & Newark t. w. cut 0.2c, Feb. 7.

Socony-Vacuum—Mobilgas:
Bangor dealer up 1.9c, & Portland dealer up 2.2c, Feb. 13.
Corrections: Albany dealer advanced to 7.4c, instead of 7.2c, Feb. 5; New Haven dealer was unchanged at 6.8c for Feb. 12 issue.

Socony-Vacuum—Kerosine:
Bridgeport t. w. cut 0.3c Feb. 7.
Hartford yard cut 0.3c Feb. 14.
Manchester yard cut 0.3c Jan. 22.

Atlantic Refining—Kerosine:
New Jersey points cut 0.2c Feb. 12.

S. O. Indiana—Red Crown:
Grand Rapids t. w. & dealer cut 0.5c Feb. 7.

S. O. Indiana—Stanolind:
Grand Rapids dealer cut 0.4c Feb. 7.
Green Bay dealer cut 1.4c Feb. 12.

S. O. Indiana—Kerosine:
Decatur t. w. cut 1.5c Feb. 12.

Continental Oil—Demand:
Little Rock t. w. up 0.5c Feb. 10.

CRUDE OIL PRICES

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I. gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN & CENTRAL STATES FIELDS

PENNSYLVANIA GRADE

Posted by Jos. Seep Purch. Agency (Jan. 27, '41)

Bradford-Allegany $2.30
Southwest Penna $1.95
Eureka (West Va.) $1.89
Corning, O. (Nov. 4, 1939) $1.12

Posted by Tide Water Assoc. Oil Co. (Jan. 27, '41)

Bradford-Allegany $2.30

Posted by The Pennzoil Co., (Jan. 27, '41)

National Transit $2.23*

Posted by Valvoline Pipe Lines (Jan. 27, 1941)

Bradford (Elk & McKean Counties, Pa.) $2.30
Warren, Forest, Venango, Clarion & Butler Counties, Pa. $2.23
Allegheny, Beaver, Washington & Greene Counties, Pa. $1.95
West Virginia $1.89
South Eastern Ohio $1.85

*Applies to Cochran, Franklin, Hamilton & Doolittle districts; prices in other lower districts range down to $2.18 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co. (Jan. 2, '41)

Midland, Midland County $1.22
Sherman, Clare-Freeman $1.17

Posted by Simrall Corp. (Jan. 2, '41)

Greendale, Porter, Vernon, Crystal & Wise $1.22
Buckeye, Bentley, Edenville, Beaverton & sweet crude type of Monitor $1.20
Freeman, Redding & Lincoln $1.17
West Branch-Arenac $1.02
Hamilton-Grout $1.07

Posted by Sohio Corp. (Michigan Division)

Traverse Crude in Allegan, Kent & Ottawa Cos., Bloomingdale & Columbia Twps. in Van Buren Co. (Jan. 16, '41) $1.23
Trenton Crude in Monroe Co. (Jan. 16, '41) $1.17

Posted by Bay Pipe Line Corp. (Jan. 2, '41)

Saginaw & Wise $1.22 — Buckeye & Bentley $1.20
Clare ..... $0.91 — Adams $1.05
Bay Distillate $1.48

ILLINOIS-INDIANA-KENTUCKY

Posted by Sohio Corp.

Illinois Basin, including Griffin pool (Aug. 21,'40) $1.15
Carmi, Storms, Ill. area (Feb. 1, '41) 1.10
Birk City, Ky. area (Jan. 1, '41) 1.10
Corydon, Ky. area, Henderson (Jan. 1, '41) 1.10

Posted by Ohio Oil Co.

Illinois Basin (Aug. 21, '40) $1.15
Illinois & Western Indiana (Aug. 23, '40) 1.00

Posted by Carter Oil Co. (Aug. 21, '40)

Louden, Fayette Co. Ill. $1.15

Posted by Mohawk Oil Lines, Inc. (Aug. 21, '40)

So. Illinois heavy ..... $1.05 — Light $1.15

Posted by Ashland Oil & Transp. Co. Somerset oil in Ashland Lines, Ky.:

(Aug. 21, '40)

Big Sandy River ..... $1.12 — Kentucky River $1.20

Posted by Owensboro-Ashland Co.

Owensboro, Ky. area (Aug. 21, '40) $1.10

MID-CONTINENT

OKLAHOMA-KANSAS-NORTH TEXAS

(See below for companies posting and effective dates)

Gravity	Schedule No. 1	Schedule No. 2	Schedule No. 3	Schedule No. 4	Schedule No. 5
Below 21	$0.70	$0.60	....	....	$0.63
21-21.9	.72	.63	....	....	.65
22-22.9	.74	.66	....	....	.67
23-23.9	.76	.69	....	....	.69
24-24.9	.78	.72	....	....	.71
25-25.9	.80	.75	....	$0.58	.73
26-26.9	.82	.78	....	.63	.75
27-27.9	.84	.81	....	.68	.77
28-28.9	.86	.84	$0.86	.73	.79
29-29.9	.88	.87	.88	.78	.81
30-30.9	.90	.90	.90	.82	.83
31-31.9	.92	.92	.92	.86	.85
32-32.9	.94	.94	.94	.90	.87
33-33.9	.96	.96	.96	.96	.89
34-34.9	.98	.98	.98	.98	.91
35-35.9	1.00	1.00	1.00	1.00	.93
36-36.9	1.02	1.02	1.02	1.02	.95
37-37.9	1.04	1.04	1.04	1.04	.97
38-38.9	1.06	1.06	1.06	1.06	.99
39-39.9	1.08	1.08	1.08	1.08	1.01
40 & above	1.10	1.10	1.10	1.10	1.03

Above schedules posted by:

No. 1: S. O. Indiana Oct. 17, '38 in Okla. & Kans.
No. 2: Carter Oct. 13, '38 in Okla.; Magnolia Oct. 12, '38 in Okla.; Shell Oct. 22, '38 in Okla. & Kans.
No. 3: Continental Oct. 11, '38 in Okla. & Kans. with lowest grade Below 29; Texas Co. Oct. 12, '38 in Okla. & Kans.
No. 4: Sinclair-Prairie Aug. 31, '39 in Okla. & Kans.
No. 5: Stanolind Sept. 1, '40 in N. Texas; Continental Oct. 11, '38 in N. Texas; Texas Co. Oct. 12, '38 in N. & N. Central Texas; Magnolia Dec. 3, '38 in N. & N. Central Texas; Sinclair-Prairie July 16, '40 in Mexia & N. Central Texas. Texas Co.'s lowest grade is 28-28.9 at $0.79; Continental, Magnolia and Sinclair-Prairie postings begin with Below 29 at $0.79.

TEXAS & NEW MEXICO FIELDS

Posted by Humble Oil & Refining Co. (Oct. 2, '39)

Gravity	West Central Texas	East Central Texas	Gray County	Carson & Hutchinson Counties	Tomball, Etc.	West Texas & New Mexico	Texas Gulf Coast & Mirando	Anahuac-Dickinson	Refugio
Below 20	....	....	....	....	....	$0.53	$0.86	$0.81	$0.91
20-20.9	....	....	....	....	....	.55	.88	.83	.93
21-21.9	....	....	....	....	....	.57	.90	.85	.95
22-22.9	....	....	....	....	$0.95	.59	.92	.87	.97
23-23.9	....	$0.78	....	....	.97	.61	.94	.89	.99
24-24.9	$0.71	.80	....	....	.99	.63	.96	.91	1.01
25-25.9	.73	.82	....	....	1.01	.65	.98	.93	1.03
26-26.9	.75	.84	....	....	1.03	.67	1.00	.95	1.05
27-27.9	.77	.86	....	....	1.05	.69	1.02	.97	1.07
28-28.9	.79	.88	$0.72	$0.67	1.07	.71	1.04	.99	1.09
29-29.9	.81	.90	.74	.69	1.09	.73	1.06	1.01	1.11
30-30.9	.83	.92	.76	.71	1.11	.75	1.08	1.03	1.13
31-31.9	.85	.94	.78	.73	1.13	.77	1.10	1.05	1.15
32-32.9	.87	.96	.80	.75	1.15	.79	1.12	1.07	1.17
33-33.9	.89	.98	.82	.77	1.17	.81	1.14	1.09	1.19
34-34.9	.91	1.00	.84	.79	1.19	.83	1.16	1.11	1.21
35-35.9	.93	1.02	.86	.81	1.21	.85	1.18	1.13	1.23
36-36.9	.95	1.04	.88	.83	1.23	.87	1.20	1.15	1.25
37-37.9	.97	1.06	.90	.85	1.25	.89	1.22	1.17	1.27
38-38.9	.99	1.08	.92	.87	1.27	.91	1.24	1.19	1.29
39-39.9	1.01	1.10	.94	.89	1.29	.93	1.26	1.21	1.31
40 & above	1.03	1.12	.96	.91	1.31	.95	1.28	1.23	1.33

W. Central Tex. includes crudes purchased in Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton & Young Cos., Tex.

E. Central Tex. includes crudes purchased in Anderson, Cherokee, Limestone & Navarro Cos., Tex.

W. Tex. & N. Mex. includes crudes purchased in Andrews, Crane, Crockett, Ector, Gaines, Glasscock, Howard, Reagan, Upton, Winkler & Yoakum Cos., Tex. & Lea Co., N. Mex.

Tex. Gulf Coast includes crudes purchased in Goose Creek, Sugarland, Thompsons, Mykawa, Amelia, Webster & Clear Lake fields.

Anahuac-Dickinson includes crudes purchased in Gillock, Cedar Point, Fairbanks, Turtle Bay, Hull, Pierce Junction & Raccoon Bend (Shallow Sand) fields.

Refugio includes crudes purchased in Saxet, East White Point, Greta, O'Connor-McFadden, Taft, Plymouth & Tom O'Connor fields.

Mirando includes crudes purchased in Duval, Jim Hogg, Webb & Zapata Cos., Tex. & in Heyser & Placedo fields.

Postings for Raccoon Bend (Deep Sand) & Satsuma crudes are same as for Tomball.

East Texas $1.10
Van ..... .93
Pecos ..... .78
Talco $0.65
Conroe 1.27
Hardin 1.10
Flour Bluff & Jim Wells Cos. $1.23
Salt Flat, Darst Creek, Hilbig, Carroll, Clark & Zoboroski ..... .96

MAGNOLIA PETROLEUM CO.

Gray, Carson & Hutchinson Cos., Tex.—Dec. 3, '38—same as Humble.

Tomball, Tex.—Dec. 3, '38—same as Humble.

West Texas—Oct. 12, '38, in Crane, Glasscock, Howard, Mitchell, Upton & Winkler Cos. and Dec. 6, '40 in Cochran, Hockley, Yoakum & Gaines Cos.—same as Humble except Magnolia begins with Below 25 at $0.63.

N. Mexico—Oct. 15, '39, in Lea Co.—same as Humble except Magnolia begins with Below 25 at $0.63 and ends with 36 & above at $0.87.

Mirando, Tex.—Oct. 2, '39—same as Humble.

Beaumont, Tex.—Oct. 2, '39—same as Humble Texas Gulf Coast.

Cass & Panola Cos., Tex.—Oct. 12, '38—Below 25 grav. oil at $0.73, plus 2c per degree of gravity to top of 40 & above at $1.05.

Following Tex. postings Oct. 12, '38:

East Texas $1.10
Darst Creek ..... .96
Luling ..... .87
Lytton Springs ..... .99
Cleveland (Liberty Co.) $1.14
Hardin (Liberty Co.) 1.02

SINCLAIR-PRAIRIE OIL MARKETING CO.

Gray, Carson & Hutchinson Cos., Tex.—Aug. 31, '39—same as Humble.

West Texas & Lea Co., N. Mex.—Aug. 31, '39—same as Humble, except Sinclair begins with Below 25 at $0.63 and ends with 36 & above at $0.87.

Texas Gulf Coast—Oct. 3, '39—same as Humble.

East Texas (Oct. 2, '39) $1.10
Eddy Co., N. Mex. (Aug. 31, '39) ..... .77
Long Lake, in Anderson, Leon & Freestone Cos., Tex. (Jan. 20, '40) $1.08

STANOLIND OIL PURCHASING CO.

Tomball, Tex.—Aug. 29, '39—same as Humble except Stanolind begins with Below 29 at $1.07.

Texas Gulf Coast—Oct. 3, '39, in Clinton field—same as Humble Texas Gulf Coast except Stanolind begins with Below 21 at $0.88.

STANOLIND OIL & GAS CO.

West Beaumont, Jefferson Co., Tex.—Oct. 2, '39—same as Humble Texas Gulf Coast.

THE TEXAS CO.

(Effective Oct. 2, '39)

Panhandle, Tex.—Sweet crude same as Humble's Gray Co. except Texaco begins with 34-34.9 at $0.84. Sour crude same as Humble's Carson & Hutchinson Cos. except Texaco begins with 34-34.9 at $0.79.

West Texas & Lea Co., N. Mex.—Same as Humble except Texaco begins with Below 26 at $0.65 and ends with 36 & above at $0.87.

Texas Gulf Coast—Same as Humble except Texaco ends with 34 & above at $1.16.

Mirando-Duval, Tex.—Same as Humble except Texaco ends with 28 & above at $1.04.

Refugio, Tex.—Same as Humble except Texaco ends with 28 & above at $1.09.

Following Tex. postings Oct. 2, '39:

East Texas $1.10
Darst Creek ..... .96
Cass Co. $1.05
Conroe 1.27

SHELL OIL CO., INC.

West Texas & Lea Co., N. Mex.—Aug. 29, '39, & Yoakum Co., Tex. Sept. 1, '39—same as Humble except Shell ends with 36 & above at $0.87.

Fisher Co., Tex.—Aug. 29, '39—Below 25 grav. at $0.68, plus 2c per degree of gravity up to 40 & above at $1.00.

Following Tex. postings Oct. 5, '39:
East Texas $1.10
Livingston area, Polk Co. 1.10
Following Tex. postings Aug. 29, '39:
Pecos Co., except Yates Shallow pool $0.78
Pecos Co., Yates Shallow pool ..... .65

CONTINENTAL OIL CO.

Eddy Co., N. Mex.—Apr. 22, '40—Begins with Below 29 at $0.61, plus 2c per degree gravity up to 40 & above at $0.85.

Mirando, Tex.—Feb. 1, '41—same as Humble, except Continental begins with Below 21 at $0.88.

Alfred & Magnolia City, Tex. (Jim Wells Co.)—Jan. 1, '41—$1.08.

PAN AMERICAN PIPE LINE CO.

Hastings & So. Houston, Tex. crudes—Oct. 1, '40—same as Humble Texas Gulf Coast except Pan Am. begins with Below 21 at $0.88.

Cayuga, Anderson Co., Tex.—Oct. 2, '39—$0.78.

East Texas—Jan. 1, '41—$1.10.

CRUDE OIL PRICES *(Continued from preceding page)*

CALIFORNIA *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 1, 1940

Gravity	Signal Hill (Long Beach) and others*	Seal Beach	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canon	Athens-Rosecrans	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	Greeley Canal	Coles Levee Richfield Western	Mountain View and others**	Elk Hills, BuenaVistaHills, Midway-Sunset, Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Santa Maria Val. (Union Oil, Sept. 1 '39)
14-14.9	$0.65	$0.64	$0.63	$0.64	$0.65	$0.61	....	$0.65	$0.61	$0.61	$0.62	$0.63	....	....	....	$0.60	$0.60	$0.60	$0.60	....	$0.42
15-15.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.44
16-16.9	.65	.64	.63	.64	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.45
17-17.9	.65	.64	.63	.68	.65	.61	....	.65	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	.46
18-18.9	.65	.64	.63	.71	.65	.65	....	.68	.61	.61	.62	.63	....	....	....	.60	.60	.60	.60	....	....
19-19.9	.69	.64	.67	.75	.70	.69	....	.72	.61	.65	.62	.63	....	....	....	.60	.64	.64	.61	$0.60	....
20-20.9	.73	.64	.72	.79	.76	.74	....	.75	.65	.69	.62	.67	....	....	....	.60	.69	.69	.62	.60	....
21-21.9	.78	.64	.76	.82	.81	.78	....	.79	.69	.73	.62	.72	$0.63	....	....	.64	.74	.74	.66	.60	....
22-22.9	.82	.69	.81	.86	.86	.82	....	.82	.73	.77	.66	.76	.63	....	....	.68	.79	.78	.70	.63	....
23-23.9	.86	.75	.85	.89	.92	.86	$0.71	.86	.78	.82	.71	.81	.67	....	....	.71	.84	.82	.74	.67	....
24-24.9	.90	.80	.90	.93	.97	.90	.77	.89	.82	.86	.75	.85	.72	....	....	.75	.89	.86	.78	.71	....
25-25.9	.95	.86	.94	.96	1.02	.95	.82	.93	.86	.90	.80	.89	.77	....	....	.79	.94	.90	.82	.75	....
26-26.9	.99	.91	.99	1.00	1.08	.99	.88	.96	.90	.94	.84	.94	.82	....	....	.83	.99	.95	....	....	....
27-27.9	1.03	.97	1.03	1.04	....	1.03	.94	1.00	.94	.98	.89	.98	.87	$0.83	$0.92	.87	1.04	.99	....	....	....
28-28.9	1.07	1.02	1.07	1.07	....	1.07	.99	1.03	.98	....	.93	1.02	.91	.86	.96	.91	1.09	1.03	....	....	....
29-29.9	1.10	1.07	1.11	1.10	....	1.10	1.04	1.06	1.02	....	.98	1.06	.96	.90	.99	.95	1.14	1.07	....	....	....
30-30.9	1.14	1.12	1.15	1.14	....	1.14	1.09	1.09	....	....	1.02	1.10	1.01	.94	1.02	.99	1.19	1.11	....	....	....
31-31.9	....	....	....	1.17	....	1.17	1.14	Elwood Terrace			1.07	1.14	1.05	.98	1.06	1.02	1.24	Kettleman Hills			....
32-32.9	....	....	....	1.20	....	1.20	1.19	F. O. B. ship.			1.11	1.18	1.09	1.02	1.09	1.06	1.29	....	$1.12	....	....
33-33.9	....	....	....	....	....	....	1.24	....	$1.21	....	1.15	1.22	1.14	1.06	1.13	1.10	1.34	....	1.17	....	....
34-34.9	....	....	....	....	....	....	1.29	....	1.25	....	1.20	1.26	1.19	1.10	1.16	1.14	....	....	1.21	....	....
35-35.9	....	....	....	....	....	....	1.34	....	1.29	....	1.24	....	1.23	1.14	1.20	....	....	....	1.25	....	....
36-36.9	....	....	....	....	....	....	1.39	....	1.33	....	1.28	....	1.27	1.18	1.23	....	....	....	1.29	....	....
37-37.9	....	....	....	....	....	....	1.44	....	1.37	....	1.33	....	1.31	1.22	1.26	....	....	....	1.33	....	....
38-38.9	....	....	....	....	....	....	1.49	....	....	....	1.37	....	1.36	1.25	1.30	....	....	....	1.38	....	....
39-39.9	....	....	....	....	....	....	1.54	....	....	....	1.42	....	....	1.29	1.34	....	....	....	....	....	....
40-40.9	....	....	....	....	....	....	1.59	....	....	....	1.46	....	....	1.33	1.37	....	....	....	....	....	....
41-41.9	....	....	....	....	....	....	....	....	....	....	1.50	....	....	1.37	1.40	....	....	....	....	....	....
42-42.9	....	....	....	....	....	....	....	....	....	....	1.54	....	....	1.41	1.44	....	....	....	....	....	....
43-43.9	....	....	....	....	....	....	....	....	....	....	1.59	....	....	1.45	1.47	....	....	....	....	....	....
44-44.9	....	....	....	....	....	....	....	....	....	....	1.63	....	....	1.49	1.51	....	....	....	....	....	....
45-45.9	....	....	....	....	....	....	....	....	....	....	1.67	....	....	1.53	1.54	....	....	....	....	....	....
46-46.9	....	....	....	....	....	....	....	....	....	....	1.71	....	....	1.57	1.57	....	....	....	....	....	....
47-47.9	....	....	....	....	....	....	....	....	....	....	....	....	....	1.61	....	....	....	....	....	....	....
48-48.9	....	....	....	....	....	....	....	....	....	....	....	....	....	1.64	....	....	....	....	....	....	....

FOB Standard Pipeline

*El Segundo prices same as Signal Hill. Wilmington prices same as Signal Hill, except below 19 gravity prices are: 14-16.9, $0.60; 17-17.9, $0.62; 18-18.9, $0.64.
**Includes Newhall, McKittrick, Kern River, Round Mountain and Kern Front, schedule for which ends with 19-19.9. Mountain View schedule begins with 19-19.9.

LOUISIANA-ARKANSAS

Posted by S. O. Louisiana, Oct. 17, '40

Gravity	Bunkie, La. etc.	Caddo, La. etc.	Darrow, La. etc.	University, La. (Baton Rouge)	Atlanta, Ark. etc.
Below 21	....	....	$0.75	$0.91	$0.55
21-21.9	....	....	.77	.93	.57
22-22.9	....	....	.79	.95	.59
23-23.9	....	....	.81	.97	.61
24-24.9	....	....	.83	.99	.63
Below 25	$0.83	$0.73	....	....	....
25-25.9	.85	.75	.85	1.01	.65
26-26.9	.87	.77	.87	1.03	.67
27-27.9	.89	.79	.89	1.05	.69
28-28.9	.91	.81	.91	1.07	.71
29-29.9	.93	.83	.93	1.09	.73
30-30.9	.95	.85	.95	1.11	.75
31-31.9	.97	.87	.97	1.13	.77
32-32.9	.99	.89	.99	1.15	.79
33-33.9	1.01	.91	1.01	1.17	.81
34-34.9	1.03	.93	1.03	1.19	.83
35-35.9	1.04	.94	1.04	1.20	.84
36-36.9	1.05	.95	1.05	1.21	.85
37-37.9	1.06	.96	1.06	1.22	.86
38-38.9	1.07	.97	1.07	1.23	.87
39-39.9	1.08	.98	1.08	1.24	.88
40 & above	1.09	.99	1.09	1.25	.89

Bunkie, La. schedule includes Eola and Olla, La.

Caddo, La. schedule includes De Soto, Homer, Sabine & Sugar Creek, La., Fouke & Miller County, Ark.

Darrow, La. schedule includes, Bayou des Glaise, Bayou, Mallet, Choctaw, Jeanerette, Lirette, No. Crowley, Port Barre, Potash, Roanoke & St. Martinville, La.

Atlanta, Ark. schedule includes Buckner, Magnolia, Village & Schuler (Jones Sand Oil), Ark.

Cotton Valley:
Crude $1.05
Distillate 1.10
Holloway Sand
Crude 1.10
Rodessa $1.05
Shreveport (Cross Lake) 1.05
Smackover (Heavy) ..... .73
Dorcheat, Big Creek, & McKamie (Sour Distillates) ..... .95

(Continued in next column)

LOUISIANA-ARKANSAS (Cont'd)

Posted by Shell Oil Co., Inc. (Aug. 29, '39)
Iowa District, La.

Below 18	$0.75	23-23.9	$0.89	29-29.9	$1.04
18-18.9	.77	24-24.9	.92	30-30.9	1.06
19-19.9	.79	25-25.9	.95	31-31.9	1.08
20-20.9	.81	26-26.9	.98	32-32.9	1.10
21-21.9	.83	27-27.9	1.00	33-33.9	1.12
22-22.9	.86	28-28.9	1.02	34 & above	1.14

Black Bayou & White Castle Districts, La.—same as Iowa District, except Black Bayou, etc. begins with Below 20 at $0.79.

Gibson Field, Terrebonne Parish, La. $1.04
Happytown Field, St. Martin, Parish, La.

(Jan. 12, '40) 1.00

Posted by Arkansas Fuel Oil Corp.

Urania, La. (Jan. 3, '41) $0.95

Posted by Continental Oil Co.

Tepetate & Ville Platte, La. (Oct. 11, '38) $1.03

Abbeville, La. (Jan. 1, '39)

Below 36	$0.92	37-37.9	$0.96	39-39.9	$1.00
36-36.9	.94	38-38.9	.98	40 & above	1.02

CANADIAN FIELDS

Posted by Imperial Oil Limited Western Ontario (Nov. 6, 1939)

Petrolia ..... $2.10 Oil Springs $2.17

Turner Valley Crude Oil (Sept. 12, '40)
(Prices FOB producer's tankage)

33-33.9	$1.08	44-44.9	$1.30	55-55.9	$1.52
34-34.9	1.10	45-45.9	1.32	56-56.9	1.54
35-35.9	1.12	46-46.9	1.34	57-57.9	1.56
36-36.9	1.14	47-47.9	1.36	58-58.9	1.58
37-37.9	1.16	48-48.9	1.38	59-59.9	1.60
38-38.9	1.18	49-49.9	1.40	60-60.9	1.62
39-39.9	1.20	50-50.9	1.42	61-61.9	1.64
40-40.9	1.22	51-51.9	1.44	62-62.9	1.66
41-41.9	1.24	52-52.9	1.46	63-63.9	1.68
42-42.9	1.26	53-53.9	1.48	64 & over	1.70
43-43.9	1.28	54-54.9	1.50		

Absorption Gasoline (Jan. 5, 1938)

90% Rec., 20 lb. Reid v.p. $1.94
90% Rec. 17 lb. Reid v.p. $2.08

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co. (Oct. 11, '38)

Salt Creek (except Tensleep crude), Midway & Dutton Creek, Wyo.

Below 29	$0.86	32-32.9	$0.94	36-36.9	$1.02
29-29.9	.88	33-33.9	.96	37-37.9	1.04
30-30.9	.90	34-34.9	.98	38-38.9	1.06
31-31.9	.92	35-35.9	1.00	39-39.9	1.08
				40 & above	1.10

Wyoming:

Tensleep Crude	$0.6515	Grass Creek Light	$0.90
Frannie Light	.55	Grass Creek Heavy	.40
Frannie Heavy	.42	Elk Basin	.90
Hamilton Dome	.35	Hes, Colo.	.92

Posted by S. O. Indiana (June 5, '39)

Lance Creek, Wyo. $0.77

Posted by Ohio Oil Co. (Oct. 11, '38)

Elk Basin, Wyo $0.90
Grass Creek, Wyo. Light ..... .90
Rock Creek, Wyo. 1.00
Lance Creek, Wyo ..... .77
Dry Creek, Mont ..... .92
Sunburst, Mont. (Nov. 16, '37) ..... .90

Posted by Continental Oil Co. (Oct. 11, '38)
Ft. Collins & Wellington, Col.

Below 29	$0.81	32-32.9	$0.89	36-36.9	$0.97
29-29.9	.83	33-33.9	.91	37-37.9	.99
30-30.9	.85	34-34.9	.93	38-38.9	1.01
31-31.9	.87	35-35.9	.95	39-39.9	1.03
				40 & above	1.05

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Cat Creek, Mont. . 1.10
Big Muddy, Wyo. . $0.98
Lance Creek, Wyo. 0.77

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· PERSONALS ·

If you're living in, around or near Cleveland and have access to either a phone or an extra nickel, **Paul Ryan,** Cleveland, president of National Refining Co., will probably be glad to say hello. His number is Michigan 1415, and the address is St. Alexis Hospital, Broadway and McBride. Mr. Ryan suffered serious injuries Dec. 4, 1940 in a plane crash near the Chicago airport, and probably will be in the hospital for 5 more weeks.

* * *

Capt. James W. Flanagan, president of Andian National Corp. since 1925 and a director of International Petroleum Co., Toronto, has been appointed an honorary colonel of the Irish Regiment of Canada. This appointment was said to be the first such honor bestowed on an American in the history of the Canadian Army.

Capt. Flanagan served in the Spanish American War and was employed by railroad companies in Mexico and Cuba before joining Standard Oil Co. of New Jersey in 1912. From 1912 to 1918, he worked in Peru and Mexico, joining the newly organized Andian National Corp., a subsidiary of International Petroleum Co. He became vice-president of Andian National in 1919 and president in 1925. In 1935, he was made a director of International Petroleum Co., a subsidiary of Standard Oil Co. of New Jersey, and since that time has made his home in Toronto.

Capt. James W. Flanagan

John B. Browne, Jr., Los Angeles, has been appointed advertising manager of Pathfinder Petroleum Co.

* * *

Chairman of the recently-created Halifax County (Va.) Industrial Board is **John R. Booth,** South Boston, Va., branch manager of American Oil Co. Purpose of this board is to attract new industries to South Boston and Halifax county.

* * *

From 624 South Michigan Ave., Chicago, to the U. S. Army will be the change-of-address for **Albert Ferguson,** sales promotion department, Shell Oil Co. Mr. Ferguson will be "mustered in" Feb. 20.

* * *

Ralph B. Roark, Tulsa, vice-president of Shell Oil Co. Inc., has been named co-chairman of the executive committee of Tulsa's First Methodist Church.

* * *

Houston Chamber of Commerce has re-appointed **Charles I. Francis,** counsel for Pure Oil Co., chairman of its civic improvement committee.

* * *

John P. Fallon, superintendent of terminals for Standard Oil Co. of Pennsylvania since 1929, has been elected president of the Tuscarora Pipe Line.

Born in 1879 in Philadelphia, where he studied at Drexel Institute, Mr. Fallon held various jobs as construction foreman, including yard and construction foreman for Atlantic Refining Co., before joining the old Standard Oil Co. in 1908 as construction superintendent at Bayway. In 1919 he went to Florida and Georgia in connection with Fuller's Earth development work, and in 1922 was made a director of Attapulgus Clay Co.

J. G. Heusner succeeds Mr. Fallon in charge of terminal operations for the Standard Oil Co. of Pennsylvania.

* * *

Joseph F. Adams, former vice-president of Barnsdall Oil Co., and more recently manager of oil and paint container sales for Owens-Illinois Can Co., has been promoted to national accounts manager for the latter concern. Mr. Adams has been with Owens-Illinois for three years.

After his assignment as Secretary of the Petroleum Exhibit at the New York World's Fair, **W. B. Velsor** has returned to Socony Vacuum's Eastern Marketing Division as a member of the sales research staff under **R. W. Reinhart** at 26 Broadway.

* * *

Col. George A. Hill, Jr. of Houston, president of Houston Oil Co. of Texas, has been appointed chairman of the military affairs committee of the Houston Chamber of Commerce.

* * *

Reports from the Gulf coast indicate **Tex Bradford,** widely known as "tamer" of wild oil and gas wells, may now be "playing with dynamite" as lance sergeant in the mechanized cavalry of the Canadian Active Service Force in London. Home folks say his letters infer he is "demilitarizing 'dud' bombs dropped on London by the Germans."

* * *

J. H. Jimmerson, Newkirk, Okla., claims the first service station with a double drive between Ponca City, Okla., and Denver. This was an unusual station in those days and was built in 1914 and still in use. It was a one-pump affair at that time and gallonage averaged from 1200 to 1500 daily. The clear-vision pump that was "original equipment" with the station is among Mr. Jimmerson's collection of mementos.

* * *

S. L. Gilliam, Tulsa, Mid-Continent Petroleum Corp.'s new purchasing agent, (NPN, Jan. 29, 1940, p.48) has appointed **C. W. Wallace** of the Tulsa office as first assistant purchasing agent. Mr. Wallace was chief clerk in the purchasing department and is a 17-year man with Mid-Continent. **J. R. Stockton** and **G. E. Knotts** will continue as assistant purchasing agents, Mr. Gilliam said.

* * *

John B. Terry, chief chemist, Standard Oil Co. of California, will be guest of honor at the annual dinner of Committee D-2 of the American Society for Testing Materials June 23-27, at Chicago. Selection was made by unanimous vote of the committee at its recent meeting in Detroit. Mr. Terry has been a member of the committee for more than 20 years. T. H. Rogers, Standard Oil Co. of Indiana, who was honored similarly last June, is chairman of the dinner committee. **T. A. Boyd,** General Motors Corp., was re-elected chairman of the committee and **R. P. Anderson** again is secretary.

Refining Technology

INCLUDING INTERNATIONAL PETROLEUM TECHNOLOGY

CRACKING WITH FLUID CATALYST

The most significant news of the week is the announcement by W. S. Farish, president of Standard Oil Co. of New Jersey, of immediate installation of three commercial cracking plants employing "fluid catalyst" in a continuous catalytic cracking process. Gradual replacement of the company's thermal cracking units by this process is predicted. Like the Houdry process, the "Fluid Catalyst" process is available to the petroleum industry under licensing arrangement.

In contrast to other catalytic cracking processes "the catalyst flows like a liquid" instead of being fixed in catalyst cases. Continuous cracking operations are maintained in one chamber and regeneration of catalyst in another. The catalyst flows in a continuous cycle from one chamber to the other and does not require several chambers to allow time out for regeneration.

The effect of this simplification of operation on the cost of installation of the process is the most significant factor affecting the future of this process and it is expected to lower production costs of motor fuel. Of further significance is the statement that units will be of smaller daily capacity than have been built heretofore. The standard unit will be of 6000 bbls. per day capacity.

Gasoline, so produced, is said to have an octane rating as high as 96 by the 1939 Research method. A spread of 14 octane numbers between this and the A. S. T. M. Motor method is further evidence of the sensitivity of higher octane number motor fuel to variations in engine conditions. Yields of about 50% gasoline of 78-82 ASTM or 92-96 Research (1939) octane numbers are expected. One advantage of the process is said to be its more uniform grade. Charging stocks can be any gas oil or reduced crude and catalysts are ordinary ones available today.

The 50% estimate is more conservative than estimates made on other catalytic processes, but considering the fact that East Coast and Gulf Coast gasoline yields have averaged around 40%, the process would be capable of maintaining adequate supply of the higher octane product. The present low yield does not indicate any limitation of ability of thermal cracking to produce motor fuel but rather a demand for other products, particularly heating oils.

The Jersey company has been ready for some time to proceed with construction of the stationary catalyst type of cracking process but delayed construction on account of the advanced stage of development in the fluid catalyst process which, they believed, would make the stationary type process obsolete before construction could be completed. The three fluid plants under construction are at Bayway, N. J., Baton Rouge, La. for Standard of Louisiana, and at Baytown, Texas, for Humble Oil and Refining Co.

★ ★ ★

ISOTOPES IN ANALYSIS

A new "tool" was suggested to chemical engineers recently by Prof. H. C. Urey, Noble price winner and head of the department of chemistry at Columbia University, speaking before the New York section of the American Chemical Society. This new "tool" is a technique based on the use of heavy and radio-active isotopes used as tracer elements. Problems such as the determination of the amount of toluene present in high octane gasoline may be more easily solved by applying the new method, Prof. Urey said. He was certain that the use to which isotopes are being put now will be greatly expanded in the future.

In analyzing material by means of tracer elements, a chemist starts with a substance which has an unknown quantity of a definite compound present. The normal ratio of heavy isotope to the ordinary form of the element present under normal circumstances is known. A measured amount of the stable tracer is added and a small sample of the compound separated. By determining the ratio of heavy isotope to the ordinary element in the sample, the exact amount of the compound present in the material may be determined.

The availability of new methods of analysis, development of improved commercial processes for separation of hydrocarbons, and ability to produce any desired hydrocarbons synthetically are indications that the gasoline knock problem may be attacked more directly from the standpoint of eliminating certain offending compounds rather than inhibiting their explosive action. The evidence that certain gasolines are of higher octane value than others indicates that there may be something gained along these lines although, at the same time, it is recognized that to prevent the formation of undesirable compounds by improvement in cracking processes may be the preferred answer.

★ ★ ★

1940 STATISTICS

The Petroleum Statement for 1940 by the Bureau of Mines coupled with price trends this year, make an excellent case for those advocating further development of new products at refineries, such as various chemicals.

The motor fuel demand in 1940 would have made a lake of gasoline two miles square and nearly 30 feet deep—about 22 inches deeper than the 1939 demand would have made in a lake of the same dimensions. Its price at the refinery (weighted average for 12 markets) is now at the lowest figure of the past 7 years.

There is possibly some significance to the fact that, in spite of this 6% gain in demand, the yield of gasoline declined 2% during 1940 to a year's average of 43.1% as compared with 45.1% in 1939. This is true not only for the country as a whole but also for the Mid-Continent area where gasoline yields have averaged above 50% for the past several years. The decline here was only 1%, however, and it remains to be seen whether the decline will continue or whether it is temporary, as has been the case in one or two other years.

The domestic demand for other leading products provides some enlightment on the situation. Kerosine demand jumped over 8,000,000 barrels for a 13.7% increase in demand, gas oil and distillate fuel demand was up over 25,000,000 barrels for an 18.5% increase, and residual fuel increased nearly 16,000,000 barrels for about 5% increase in demand.

Develop Special Paraffins To

ABSTRACT

Paraffin waxes with extraordinary physical and chemical properties are being produced and developed through increasingly intensive research programs by major refiners in an attempt to open new markets and to meet a demand for substitutes for other waxes of higher cost or which are now difficult to obtain. Solvent refining methods have had an important effect on paraffin wax quality, and other improvements have been made by additional refinement, use of a few modifiers, and selection of certain wax-bearing crudes.

High melting point and amorphous or microcrystalline characteristics are leading objectives in wax development. Among other desirable qualities are high tensile strength, elimination of low temperature brittleness, resistance to higher temperatures, luster and hardness for use in polishes.

Coatings for paper and polishes are the big markets offering the most promise but many other uses have excellent possibilities of growth if suitable wax of reasonable price is available.

SEVERAL factors have made the development of special paraffin waxes of particular importance and have interested refiners to the extent that most if not all major company laboratories have research projects in progress to bring about further developments.

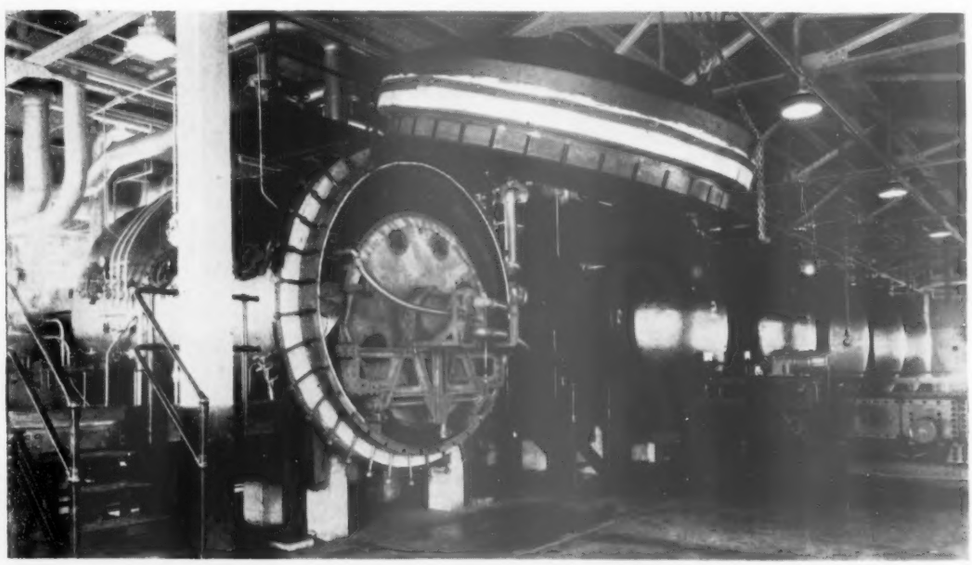
The first major factor is that new dewaxing processes are yielding crude petrolatum stocks of different character than heretofore known. According to one large oil company chemist, "the amorphous wax-like bodies so separated have no distinct crystalline structure, but are more on the type of beeswax. High melting point, tough structure and adhesive nature are distinguishing marks of this class of products."

The second factor is the demand for substitutes for other waxes of higher price or that are difficult to obtain because of the war in Europe or limited production. The third factor concerns the price and markets for paraffin waxes. The New York seaboard price of the 135-137 fully refined grade for domestic use is now 6.4c a lb., the highest level since 1929, while the price of crude scale wax has never recovered to the high level reached in 1924 and 1925 and is now about 2¾c a lb., little over half the price of 15 years ago. A year ago the above refined grade reached 7.55c a lb., which is above any year's average since these prices were first reported in NATIONAL PETROLEUM NEWS in 1925, whereas two years ago the price was 4.90c a lb., not far above the lowest year's average price for the past 15 years. Paraffin waxes of higher melting point are in demand and prices are reported to be more or less in proportion to melting point. Waxes of as high as 190° F. melting point are available.

Substitutes in Demand

The demand for substitutes comes from the fact that at least 3 waxes now in common use in the U. S. are either up in price or are difficult to obtain. Carnauba wax, sometimes called Brazil wax and one of the most valued of waxes, doubled its 5-year average price (1935-1939) during 1940, making its cost above 70c a lb. by recent quotations. During the last European war the price went to $1.25 a lb. Montan and ozokerite waxes, imported largely from Germany, Czechoslovakia, and Poland, are reported to be unavailable or very difficult to obtain. Some natural ozokerite is available in the U. S. but of lower quality.

The possibility of replacing ozokerite wax with paraffin waxes is better than for montan wax, since ozokerite is a mineral wax while montan is classed as a semi-mineral wax or a mineral-vegetable wax. As far as carnauba wax is concerned, many believe there is no satisfactory substitute for it and even go so far as to say there never will be. At least it is the most difficult to replace. One of its most important qualities, high melting point, has been duplicated and surpassed by certain paraffin waxes. However, no petroleum wax has been prepared possessing the combination of hardness, high gloss, and melting point which nature produced in this material, according to an authority with one of the major oil companies. A hydrogenated castor oil wax has been developed by Du Pont which is



Rotary wax filter assembly employed at Shell's Wood River refinery in a propane dewaxing process

To Compete in Wax Market

said to serve in some applications as a substitute for carnauba. It contains no saponifiable material, making its emulsification difficult, and its poor solubility in ordinary solvents has hindered its use, it is said.

Another oil company claims to have duplicated the physical characteristics of most non-petroleum waxes and also to have produced waxes whose properties are not matched by any natural wax of which they have knowledge.

However, the research director for a large manufacturer of polishes pointed out that "carnauba wax is used not solely for its physical characteristics but also for its chemical characteristics. It can, therefore, be readily seen that petroleum hydrocarbons could not be expected to play the role of an ester of long chain fatty acids and alcohols. It is possible, in certain restricted uses of carnauba wax, where merely its high melting point is of importance, that paraffin waxes may be produced which will in some way substitute for these properties."

Japan wax can usually be replaced by an appropriate grade of refined crystalline wax unless its saponifiable content is necessary. If its tacky feel is desired, as in coating golf club handles, this may be duplicated by mixing resins with the petroleum wax. Considerable quantity of beeswax has been replaced by the amorphous paraffins.

Three Big Uses for Paraffin Wax

The ordinary paraffin waxes, for which prices are quoted in NATIONAL PETROLEUM NEWS, range in melting point from 122° to 137° F. as compared with 184-196° F. for carnauba, 171-183° F. for montan, and 136-212° F. for ozokerite. Synthetic paraffin waxes have been separated from certain crude petroleums which have melting points above 190° F.

Fully refined paraffin is extremely stable, has a high tensile strength, is odorless and colorless. One of its most outstanding properties is its resistance to the passage of water vapor, since it surpasses even rubber in this respect, thus making it valuable as a coating for paper and cardboard.

This use of paraffin, if not now the leading one in volume consumption, is one of the big three. The major new outlet for refined wax is paper containers for milk and for the packaging of frozen foods. Straight paraffin wax is not too well suited to the latter because of its brittleness at low temperatures but special paraffin such as Standard of New Jersey's Tervan is recommended by that company for this purpose.

Candlemaking has been in the past the leading product made from paraffin.

The third use is in polishes, including floor polish, furniture polish, shoe polish, and others. There are too many other uses for paraffin to list them all here. The following are a few: coatings for fruit, flowers, and plants, an ingredient of paints and varnishes, lining for beer cans, electrotypers wax, cartridges, which is important at present, electric insulation, and carbon paper.

Five Classes of Waxes

Up to this point the term wax has been used freely in reference to paraffin but actually, by the chemical definition, it is not a true wax, although by several other definitions it is so classed. By the chemical definition a wax is any of a class of natural substances composed of carbon, hydrogen and oxygen, and consisting chiefly of esters other than those of glycerin, or of free fatty acids, or both. The vegetable type Japan wax is also not a true wax by this definition, being a vegetable glyceride. One of the large chemical manufacturers makes 5 classifications of waxes: (1) insect wax, represented by beeswax and Chinese wax, (2) vegetable waxes which include carnauba, candelilla, and Japan wax, (3) the semi-mineral montan wax, (4) the mineral waxes, ozokerite and ceresin, and (5) the animal wax, spermaceti. Paraffin would be included in class 4.

Carnauba wax is an exudation product from the leaves of one variety of palm tree growing in Brazil and for the most part is uncultivated. Imports of this wax in 1940 will probably make an all-time record, based on figures for the first 9 months. Imports for 9 months of 1940 were 12,958,480 lbs. valued at $5,745,000 as compared with 11,846,742 lbs. valued at $3,495,000 for the same period in 1939. Total imports in 1939 were 16,358,500 lbs. valued at $4,928,000. The price increase is blamed partially on a wet season in 1939 which cut production and made it necessary to go farther afield to supply the demand. Brazil's 1940 production was 28,666,000 lbs., a reduction of over 4,000,000 lbs. reported for 1939. In past years the U. S. has taken 80% of Brazil's exports but shipments to Europe are said to have increased since the start of the war.

While a rainy season is only a temporary condition, it has been pointed out that carnauba wax production, un-

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REFINING TECHNOLOGY

February 19, 1941

Refiners are developing special paraffin waxes of extraordinary qualifications to open new markets and provide substitutes for other waxes. High melting point, amorphous quality, hardness and luster are among properties sought R-50

The key to recycling efficiency in plants for recovering distillate from high-pressure natural gas is the composition of residue gas rather than the amount of liquid condensed. Two Humble engineers describe experiments for determining optimum temperatures and pressures on a typical gas-distillate well Page R-61

A wide range of knocking characteristics are shown by pure synthetic hydrocarbons in engine tests conducted as part of the American Petroleum Institute's Hydrocarbon Research Project. Effects of changes in engine conditions and tetraethyl lead were noted ..... Page R-62

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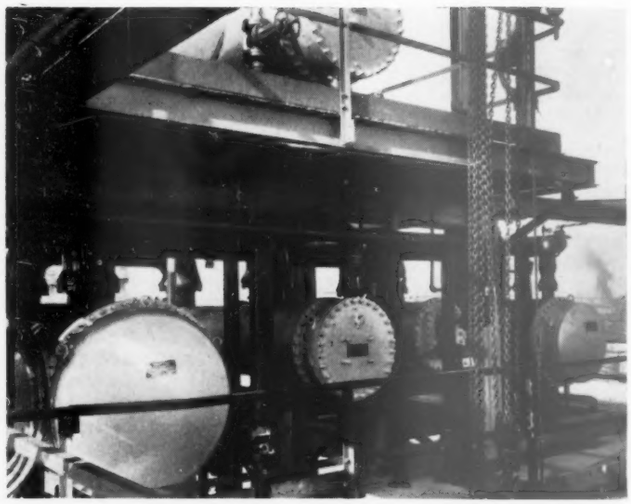


Solvent recovery section of an acetone benzol solvent dewaxing plant of Atlantic Refining Co.

less under a definite plan of cultivation, tends to become reduced in the older producing territories and requires the natives to go farther afield to obtain the wax. Efforts are being made to cultivate the trees but so far it has been done only on a limited scale.

Candelilla wax is considered a poor substitute for carnauba. It comes from northwestern Mexico and southern Texas and is taken from the stems of a plant which grows 2 to 4 feet high. The use of candelilla wax in this country has been increasing gradually. Imports from Mexico were nearly 3,000,000 lbs. in 1939, valued at something over $300,000. The plant is not cultivated but efforts are being made to prevent destructive methods of gathering the crop.

Montan a Semi-Mineral Wax

Montan wax, like carnauba, is considered an ester type wax. Even though it is derived from an apparent mineral source, it is still closely related to the vegetable source. The so-called bleached montan waxes have been distilled and broken down into several fractions, the most important of which is the montanic acid fraction. Where the characteristics of montanic acid are paramount, paraffin wax is not applicable, but certain fractions of the so-called bleached montan waxes are largely hydrocarbons for which paraffin wax is substituted.

Montan wax differs from paraffin wax in that when it is heated with concentrated sulfuric acid, its hydrocarbon content is carbonized. It is derived from lignite which may perhaps be described as vegetable matter partly mineralized to a product related to bituminous coal, and is sometimes known as lignite wax. It resembles beeswax in its resistance to saponification and its high melting point allows its application for raising the melting point of softer waxes. The refined product is lighter in color than carnauba and for some purposes it is preferred to carnauba for this reason.

Ozokerite is a natural bituminous product composed chiefly of hydrocarbons. The commercial product shows a wide hardness range. Some may be as hard as gypsum or plaster of Paris. It is also known as mineral wax or fossil wax and when purified is marketed as ceresin. Ceresin wax has fallen into disrepute because it may consist of anything from 100% bleached ozokerite to 100% paraffin wax. A polish manufacturer reports that "the petroleum industry has developed very interesting products in the form of so-called micro-crystalline waxes. The chief difference between ozokerite and normal paraffin is the question of the crystal size of the solid product. These new microcrystalline paraffin waxes are an excellent substitute for ozokerite wax and are being used widely for this purpose."

Space does not permit discussion of all waxes but it might be well to mention that the production of the well-known beeswax is not confined to any particular portion of the globe. However, imports of beeswax in 1939 and 1940 were as large as for montan wax in 1938 and their value was double that of montan. Its applications are many and varied.

Paraffin Research Just Starting

The importance of paraffin wax developments, as stated at the beginning, has been recognized by oil companies. The type of work which has been done in the past in the U. S., as indicated by patents issued on paraffin waxes and processes for their production, appears to have been directed largely toward improving the refinement of the product and to effecting a closer fractionation, rather than toward producing new paraffin compounds by any thermal or chemical processes independent of processes primarily developed for making improvements in lubricating oil manufacture, such as solvent extraction. The methods employed, however, have resulted in separating higher melting point products, amorphous or micro-crystalline waxes, and waxes having less entrained oil and impurities.

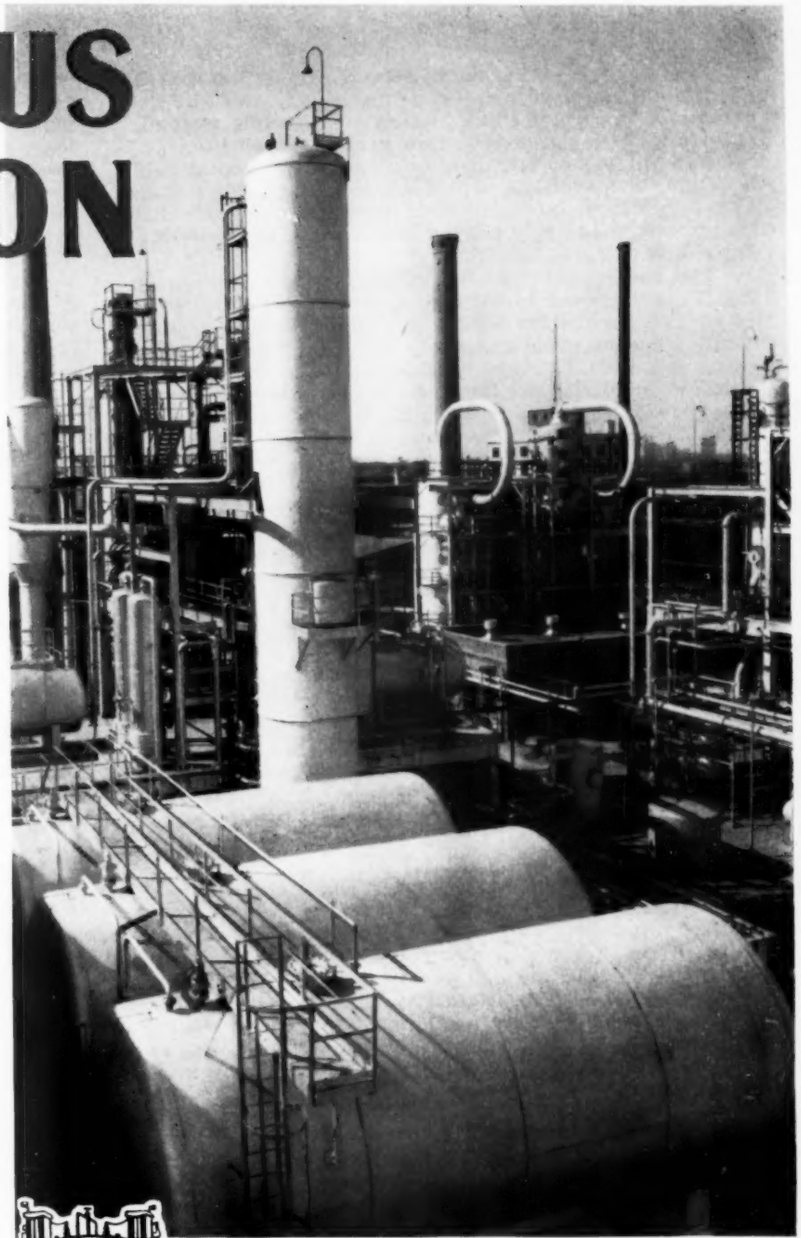
Modifiers have been employed for stabilizing paraffin for certain types of service and for changing the crystallinity of paraffin waxes. Whether they will occupy as important a place in refined wax utilization as do such materials in lubricating oils is yet to be seen. Certain hydrocarbon modifiers prepared from petroleum have already proven of definite value in many paper conversions which previously utilized only straight wax, according to John B. Tuttle, Standard Oil Co. of New Jersey. "Our company has pioneered the manufacture of polybutene from petrole-

Properties of Waxes*

Wax	Refractive Index	Specific Gravity	Melting Point Deg. C.	Melting Point Deg. F.	Direct Acid Number	Per Cent Fatty Acids	Saponification Number	Unsaponifiables Per Cent	Ratio Number $\left(\frac{\text{Sapon. No.} - \text{Acid No.}}{\text{Acid No.}}\right)$	Iodine Number	Acetyl Number
Beeswax	1.4398-1.4451 At 75°C., 167°F.	0.959-0.975	62-70	145-158	16.8-20.6	46.77	88-96	52-56	3.6-3.8	8.3-11	15.2
Candelilla	1.4555 at 71.5°C., 160.7°F.	0.969-0.993	65-69	149-156	16	29.0	46-65	74.0	4.7	14.0-36.8	
Carnauba	1.463 at 66°C., 140°F.	0.990-0.999	83-91	184-196	4-8	47.95	78-88	54-55	31	13.5	55
Ceresin	1.4415-1.4464	0.88 -0.92	54-77	130-170	0	0	<2	100	0	7-9	
Insect Wax, or Chinese Wax		0.926-0.970	65-80	149-176	13	51.5	80-93	49.5	29.3	1.4-2	
Japan	1.450 at 60°C., 140°F.	0.975-0.984	50-56	122-133	6. Usually Not over 20	4-12	217-237	1.1-1.6	11-35	4-15	27-31.2
Montan		Crude 1.0	Crude 76-92 Dist'd. 72-77 Ref'd. 77-84	169-198 162-171 171-183	Crude 25 Dist'd. 73-85 Ref'd. 15-20	Dist'd. 56-64 Ref'd. 11-15	Crude 58 Dist'd. 75-89 Ref'd. 70-80	Crude 3.58 Dist'd. 30-45	Crude 3-3.5 Dist'd. 0-03 Ref'd. 3-3.5	Crude 16 Dist'd. 10-15	
Ozokerite	1.4415-1.4464	0.85 -0.95	58-100	136-212	0	0	0	100	0	7.8	
Spermaceti	1.440 at 60°C., 140°F.	0.905--0.960	41-49	106-120	0.5-2.8 Not usually over 0.5	52-53	121-135	51-54	124	2.6-3.8	2.6

*American Cyanamid & Chemical Corp.

CONTINUOUS OPERATION of REFINERY EQUIPMENT PAYS OFF



The increasing number of Petreco Electromatic de-salting plants being installed, and the performance records of these plants, proves conclusively that the protection afforded by this positive method of salt extraction does increase on-stream time.

By reducing shut-downs in many instances to only periodic inspections, the lost time due to corrosion, plugging, scaling and coking has been minimized. Operating and maintenance costs have been lowered while revenue has been increased. The pay-off is obvious.

Petreco engineering, research and laboratory facilities are available at all times to refiners having salt troubles. Inquiries involve no obligation, and are invited.

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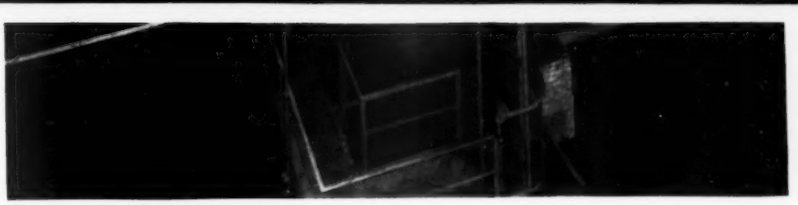
Single Unit Petreco Electromatic De-Salting Plant



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um this material offers a unique modifier for crystalline paraffin. While it does not raise the melting point of the paraffin, it imparts ductility and excellent sealing strength and markedly improves moisture vapor permeability."

Paraffin waxes containing polybutene are used largely in coating of paper and similar cellulose materials. However, exploratory work in their utilization indicates that many other fields may profitably use these products, Mr. Tuttle said.

The low temperature flexibility of a wax melting at 135° F. is improved to such an extent by the addition of 1% of 15,000 molecular weight polybutenes that very little if any tendency toward chipping and cracking at temperatures below 0° F. could be observed, it is stated in an article in Industrial and Engineering Chemistry for March, 1940, p. 304. They also improve the bonding of waxed surfaces to each other after heat sealing, it is reported.

In this connection it was noted by P. G. Higgs 6 years ago in an Institute of Petroleum paper that "perhaps the most interesting property of petroleum ceresins is their effect on the crystallinity of ordinary distillate paraffin waxes. The addition of 0.3% of East Indian ceresin is enough to render common paraffin wax almost microcrystalline." Nothing has been published to indicate that modifiers have been employed to impart luster, hardness, or other desirable qualities found in carnauba wax to paraffin.

Not Enough Paraffin Available

A large distributor for waxes has pointed out that there are new uses beyond present utilization of waxes which could result from development of low price wax approaching the quality of carnauba. Another 100,000 to 200,000 lbs. annually, based on surveys made over a period of years, could be marketed easily by this company, they believe, if they could get the wax.

One of the leading uses of carnauba wax as well as paraffin wax is in the manufacture of polishes of all kinds. Its main use now is in the preparation of paste and liquid waxes of the naphtha medium type. Changes that have been made in paraffin waxes so far have not tended to permit the use of larger portions of paraffin wax in these products, in the opinion of the research director for a large manufacturer of polishes. He adds, however, that there does seem to be some promise that certain high melting point micro-crystalline waxes may be produced which would be hard enough to obviate the common objections to hydrocarbon waxes.

The principal objection to paraffin in polishes is the so-called smearing effect which they produce. "If a high melting point micro-crystalline wax could be hard enough to prevent smearing and at the same time have a solubility, or rather insolubility, in practical solvents which would allow it to produce a firm jell structure and yet have a low solvent retention, the material would be of extreme interest," he said.

Four outstanding properties were named by this authority on polishes as being necessary to arouse more interest than the present paraffin waxes for use in naphtha medium wax polishes. These properties he listed as: "hardness and high melting point, ability to be polished to a high luster, sufficient insolubility in naphtha or other practical solvent mediums to produce a firm jell structure in low concentrations, and ability to give up the solvent medium so as to dry quickly."

Four years ago an investigation of paste and liquid wax floor polishes showed, he said, that the "solute consisted of a high melting point wax of high gloss and rather poor solubility, such as carnauba, candelilla, or a high melting point synthetic wax, together with an intermediate melting point wax of good solubility and fair gloss, such as ozokerite, ceresin, or beeswax, and a low melting point wax of excellent solubility and poor gloss, such as paraffin, dissolved in solvent naphtha alone or in combination with carbon tetrachloride or trichlorethylene."

The present purpose of paraffin wax in polishes is to secure the required pastiness without use of unnecessarily large proportions of the expensive waxes. An important function of paraffin wax in paste polishes is to prevent too rapid evaporation of solvent and so increase the spreading capacity.

Waxed Paper Improved

High melting point is also a valuable paraffin wax characteristic in the other two major fields of utility, i. e. candle making and waxed paper. Candles which do not bend in warm weather can be made from such a wax. This quality is also imparted to candle waxes to a certain degree by reduction of the quantity of entrained oil. Paraffin practically free from entrained oil has a considerably higher tensile strength.

The value of refined paraffin wax in paper lies in its insolubility, stability, and innocuousness. It must be without taste and odor and should not absorb odors. High melting point amorphous waxes are best in this service because of higher resistance to moisture and the tendency of the paper to stick together is lessened.

The extent to which the oil industry has been interested in improving paraffin waxes has already been indicated by the reduction in price of crude scale wax and the demand for more highly refined waxes. This improvement in paraffin wax has gone still farther during the past several years as indicated by patents that have been issued spasmodically during this period. At present more intensified research has not gone far enough to show up in issued patents.

Amorphous from Crystalline Wax

The following descriptions of special waxes and methods for their production give some idea of the work done. Among those which attracted attention is No. 2,136,282 issued to H. R. Dickinson in 1938. This invention is a process for imparting amorphous characteristics to normally crystalline waxes. The process is carried out by mixing amorphous and crystalline waxes together and subjecting the mixture to a high pressure while in a state of fusion. The hardness of the wax depends upon the amount of pressure applied. Crystalline waxes are said to be made to simulate waxes which possess amorphous characteristics, and a wax of low melting point can be reformed in such manner as to have a much higher melting point.

A process for recovering high melting point wax from mineral oil stock with a crystallization regulator and a liquid, normally gaseous hydrocarbon diluent is described in Pat. No. 1,998,747. In this process the mixture is cooled by vaporization of a portion of the diluent, leaving about 35-50% of diluent admixed with 75-50% of chilled stock, then filtered to separate the diluted wax oil from the wax cake containing the crystallization regulator, the diluent removed from the wax cake, which is then sweated to separate a high melting point wax from a low melting point wax and crystallization regulator, and the crystallization regulator is returned for reuse.

A little later a process for producing a high melting

Paraffin Wax Statistics

(Thousands of Pounds)

Year	Production	Imports	Exports	Domestic Demand	Average Price (cents per Lb.) Crude†	Refined‡
1925	590,577	14,588	334,179	224,301	5.48	7.25
1930	547,680	30,402	292,973	242,109	2.53	5.14
1935	450,240	19,557	229,905	261,353	2.29	5.58
1936	472,920	16,669	187,342	301,488	2.43	5.60
1937	521,640	36,929	231,723	297,288	2.82	5.66
1938	435,400	28,927	201,447	278,532	2.23	5.13
1939	464,520	39,912	232,664	325,460	3.61	5.50
1940*	469,560*	73,168*	181,287*	325,115*	2.50-2.75**	6.40**

*11 Months. **Price Quoted Feb. 10, 1941.
† White Crude Scale, 122-124 A.m.p., Western Pennsylvania.
‡ Fully Refined, 135-137 A.m.p., New York Seaboard for domestic shipment.

*An open message to Johns-Manville Employees**

by LEWIS H. BROWN, *President, Johns-Manville Corp.*

AS THIS NEW YEAR BEGINS, I am glad to have this opportunity to discuss with you the big job facing all of us during 1941.

Because of the demands placed on every business and every citizen by our nation's need for an adequate defense, our work is clearly cut out for us. We must contribute to the utmost of our ability to the defense building program.

Already, one-third of all J-M production is demanded for defense requirements. And this demand is growing daily. Some of it has been due to the increased need for J-M products for direct government projects. Some of it is the result of sales to expanding industries which use our products and are themselves working at top speed to fill government orders.

* * *

With every increased demand Johns-Manville has stepped up production to meet it. Many departments of our seventeen mines and plants have been affected by the defense needs and are now operating seven days a week, 24 hours a day. The working day is divided into three shifts of eight hours. At many locations, four shifts of employees work 40 hours each week to assure full production of the machines 7 days a week. Thus, work on Saturdays and Sundays is distributed fairly among everybody affected.

As the defense program develops we will necessarily have to step up our production more and more. This means we will have to find all the "bottlenecks" and increase the productivity of every machine.

Of course, most of us would prefer that industry's policy could be "business as usual." But these are not normal times. Business cannot be conducted "as usual" in an emergency. Defense comes first.

* * *

As a company, J-M is not going to let anything or anybody stand in the way of expediting the government's efforts to complete the defense program. This means co-operation by all of us, by management and by employees.

Naturally we shall all be called upon to make sacrifices. Taxes will be heavier. Raw material and manufacturing costs will probably rise. We shall all have to bear the burden.

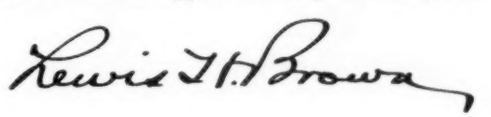
Under these circumstances we shall have to redouble our efforts to reduce waste and increase efficiency so that we not only will be able to deliver quality goods in record time, but keep prices in check. By doing this we shall be helping to keep the costs of the defense program down. As taxpayers we shall indirectly benefit through this economy, for all of us must pay our share of the enormous defense bill.

* * *

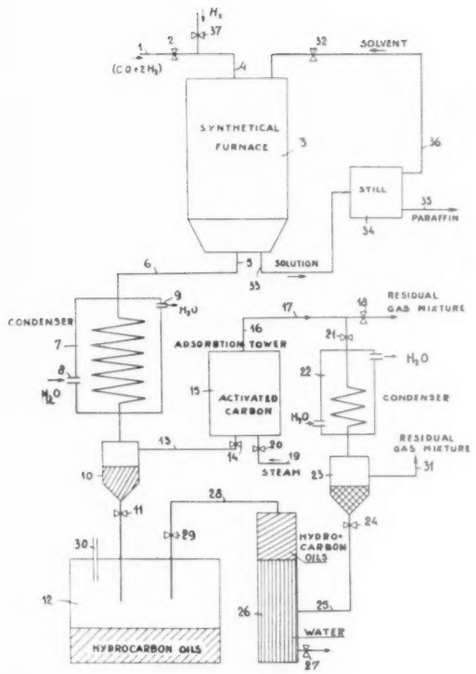
There is no doubt in my mind that J-M jobholders can be relied upon to do their part. You have already shown the spirit of real co-operation and patriotism which is so necessary. For your co-operation I want to thank you.

I know that I can count upon your continued support and loyalty in our common effort to help keep this land of ours safe and free.

May I take this opportunity to wish for all of you health and happiness during this new year?



* *Although not directly engaged in the manufacture of munitions or armaments, Johns-Manville manufactures many products essential to the operation of industries so engaged. This message, stating Johns-Manville's policy in support of the nation's defense program, originally appeared in the January, 1941, issue of the* News Pictorial, *J-M employee magazine.*



Flow diagram of a process for production of synthetic paraffin wax by hydrogenating carbon monoxide in the presence of a catalyst

point amorphous wax was described in Petroleum Processes Corp. Pat. No. 2,000,427 by which the wax is produced by dissolving petrolatum stock in a normally gaseous liquid hydrocarbon solvent which is chilled and cold settled under pressure in a closed vessel to precipitate the wax content. The oily content of the wax is withdrawn from the wax layer in the bottom, the wax-solvent layer is heated in a closed vessel to melt the wax and generate enough pressure by vaporization of the solvent to force the melted wax and remaining solvent from the vessel. The wax-solvent mixture is distilled under pressure and regulated pressure generated to overcome pressure of distillation to cause discharge of wax-solvent layer from the closed vessel to the distillation unit.

E. R. Wiles, Barnsdall, Okla., developed a process (Pat. No. 2,123,982 issued in 1938) for producing waxes having melting points of 160° F. or higher from an undistilled residue of a petrolatum distillation which contains only waxes of high melting points. The invention is described as a simplified process which avoids repeated crystallization and yet produces an oil-free product with a higher melting point and with characteristics of great ductility, adhesiveness, and film forming ability, even at temperatures as low as 32° F., which make these waxes desirable as coating materials and for other purposes.

The process comprises reducing the stock to 20.50% bottoms, dissolving the bottoms in an excess of ethylene dichloride, fractionally precipitating the wax from the solution by chilling to room temperature with agitation, filtering, washing the filtered precipitated wax with ethylene dichloride, redissolving the wax in ethylene dichloride, and distilling off the solvent.

Acid Treated Wax

An improved method for separating hard waxes of light color from dark colored wax mixtures is described in Shell Development Co. Pat. No. 2,145,784. Their process consists in treating molten wax with concentrated sulfuric acid in the presence of a light hydrocarbon diluent such as propane or naphtha to form a sludge which is separated, chilling the sour wax, preferably at a rate to insure the formation of filterable crystals, and separating the solidified wax by any method. The chilling at one or more stages, and the individual wax fractions, crystallized in the stepwise chilling, are collected separately. It was found further that the yield of hard wax could be greatly improved by adding a finely subdivided material, such as pulverized clay, to the liquid, preferably acid, diluted wax before chilling, the mixture being agitated to maintain the pulverized material in suspension during chilling.

A similar object is gained in Atlantic Refining Co. Pat. No. 2,168,330. The dark wax is treated with a selective solvent to remove impurities and color-bodies by solution in such manner as to separate wax fractions as two liquid phases.

One of this company's patents, No. 2,157,625, covers the preparation of the hard, brittle crystalline wax melting at 175-180° F. as obtained from a heavy lubricating oil distillate, preferably from Salt Creek, Wyo., crude. This distillate is acid treated, then solvent extracted, mixed with oleum spirits, and filtered to color through absorbent clay. The filtrate is chilled to about —25° F. and filter pressed to remove slack wax of about 145° F. melting point and containing about 50% oil. This slack wax is dissolved in about 92% of solvent, such as oleum spirits, and filter pressed at about 70° F. to give pressed filtrate and wax cake of 170-175° melting point but with 8-9% of oil.

The wax cake is redissolved in about 92% oleum spirits and chilled or heated to 90-100° F. and the precipitated wax is removed by filter pressing. The wax recovered has a melting point of 180-185° F. and an oil content under 1%, according to the patent disclosure. It is distinguished from the tough, tacky petrolatum waxes which have been reported to have melting points as high as 180° F. in that they are residual waxes having such ill-defined crystalline structure as to be frequently referred to as amorphous.

This wax is said to be advantageous in candles since they will not bend in hot weather. Used for waxed paper it prevents sticking together, even when mixed with a low melt wax. A high tensile strength wax is also produced from this crude by adding 1-10% of a petrolatum wax to a low tensile wax. (See Pat. No. 2,127,668)

High-Tensile Wax

A method for recovery of a refined wax of controlled melting point and uniformly high tensile strength is described in a Socony-Vacuum patent No. 2,117,984. A common objection to waxes of low tensile strength is that they will not permit of obtaining a permanent seal in impregnated wrapping papers by the usual method of subjecting the folded package to momentary heat and pressure. The cure is said to be freedom from mechanically entrained oil and moisture in the finished refined wax. Also amounts of these impurities are credited with giving rise to objectionable tastes and odors which may be transferred to the food product. The sweating method of removing oils and moisture from wax is said to be incapable of sufficiently careful control.

The new method was described as one of mixing melted paraffin wax with a hydrocarbon solvent, chilling the solution to crystallize wax, and separating the wax from the solvent and oil in a high pressure filter press operated at controlled temperatures determined by the percentage of solvent, the nature of the solvent and the desired melting point of the final wax. The wax produced by this process was said to have a tensile strength of 83 pounds and negligible oil and moisture.

A few chemical compounds have been added to paraffin wax to make them better adapted to certain uses but the possibilities in this direction appear to have been practically untouched. Whether these possibilities are or will prove to be as attractive as the use of additives in lubricating oil cannot be answered at present. A stabilizing agent to prevent discoloring, tetrahydroxybicyclospiroindan is covered in Pat. No. 2,110,950 for Standard Oil Co. of Ohio.

A method of preventing paraffin waxes from becoming rancid and developing odors is covered in Standard Oil Co. (Ind.) Pat. No. 2,116,220 for the addition of not over

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0.0005% of a wax-soluble phenolic compound such as an alkylated polyhydroxy benzene, tertiary butyl catechol, or an alkylated naphthol.

Chlorinated paraffin wax is stabilized by addition of an immiscible alkaline liquid, sodium or calcium hydroxide, followed by extraction of the wax with ether and toluol, according to claims in Hercules Powder Co., Pat. No. 2,119,-149. This treatment is said to prevent slow decomposition and liberation of hydrochloric acid under certain conditions of use.

A color stabilizer consisting of a substance of the class of alkyl hydroxy phenyl sulfides in which sulfur is direct connected to the carbon atom of the phenyl ring is used in waxes for paper containers (Standard Oil Development Co., Pat. No. 2,209,463). This company's use of polybutene has already been discussed.

The dielectric constant of a liquid wax insulating composition is raised to 5-7 by employing 25-45% fluorine, it is brought out in General Electric Co. Pat. No. 2,122,278. In addition the material is made non-inflammable and good for impregnating paper insulation in cables.

Synthetic Paraffin Waxes

Synthetic waxes have been developed by several German inventors. One starts with oxides of carbon which are hydrogenated with hydrogen or gas mixtures containing hydrogen, in the presence of a catalyst. This recent patent, No. 2,225,487, is assigned to Hydrocarbon Synthesis Corp. The paraffins formed by this process range from a soft product melting at 104° F. to hard paraffins melting at 176° F. to 230° F. In order to convert a material proportion of carbon monoxide into high melting paraffin, a gas mixture consisting of 28-29% carbon monoxide, 56-60% hydrogen, and the remainder carbon dioxide and nitrogen, is contacted at 480° F. with an alkalinized iron catalyst whose preparation is described. The high melting paraffin is extracted from the catalyst with the aid of a benzine fraction boiling at 266-284° F. at one or two-day intervals.

A similar synthetic process is described in Pat. No. 2.206,500 assigned to the same firm, in which the high melting point paraffin wax is a by-product in a synthetic process for producing benzine. In this process the catalyst is cobalt and the reaction takes place under several atmospheres of pressure. "The total quantity of raw paraffin, about 120 grams of which are recovered per cubic meter of gas from the fourth day on, melts entirely above 212° F. It has a clear white color and is almost free from any odor. 22% of the paraffin product is insoluble in boiling ether and melts at 230-237° F. The catalyst remains active for months. No paraffin products possessing similar properties have hitherto become known."

European technologists have also taken their montan wax and made improved products. In some instances waxes of higher melting point are made by refining crude, or by oxidation or esterification of montanic acid contained in montan wax. One type is made by heating montan wax with hydroxylated condensation products (Ger. pat. 543,-612 (1928)). U. S. Pat. No. 1,834,865 deals with oxidation of montan wax in liquid form by passing air through it at 320-356° F.

A substitute for beeswax is made by chlorinating montan wax in an aqueous solution by action of chlorine gas in the presence of sodium or calcium hydroxide. This product is used in polishes. A floor wax (Brit. Pat. 324,631 (1928)) is obtained by esterifying bleached montan wax and fatty aromatic or hydro-aromatic acids such as coconut oil, fatty acids, benzoic or salicylic acids, and wool grease by means of a polyhydric alcohol such as ethylene glycol or polyglycols, or by glycerol in the presence of a catalyst like sulfuric or hydrochloric acid.

A wax substitute for carnauba in polishes (Fr. Pat. 644,149 (1927)) is made by oxidation of montan wax with acids other than nitric, particularly chromic in the presence of glacial acetic acid. Increased hardness and higher melting point for several waxes are obtained by adding montan wax (up to 10%) bleached with chromic acid (Can. Pat. 284,971 (1928)).

Chemical Consumption Declines At Refineries

Of the four principal refining materials or chemicals consumed in refineries, two declined in volume between 1937 and 1939 and two increased in volume consumed, it is shown by the U. S. Bureau of the Census in a report dated Feb. 3, 1941. Sulfuric acid and fuller's earth consumption were down while soda ash and caustic soda increased in volume consumed. Crude consumed by refineries increased from 1,161,258,442 barrels to 1,250,256,188 barrels from 1937 to 1939, the report shows.

The Census Bureau's figures are as follows:

Material	1939	1937
	Tons (2000 pounds)	
Sulfuric acid:		
Purchased	505,592 }	
Produced in plant	204,847* }	735,128
Reclaimed and reused	214,150*	262,611†
Fuller's earth	158,386	180,525
Caustic soda, purchased	99,297	81,824
Soda ash	11,318	10,363

Largest refining states in 1939 were Texas with a little over 400,000,000 bbls. of crude consumed by refineries (65,000,000 over 1937 figure), California with a little over 200,000,000 bbls. (down 4,000,000), Pennsylvania with a little over 100,000,000 bbls. (only a slight gain). Next in order are Indiana, New Jersey, Louisiana, Oklahoma, Illinois, Kansas, and Ohio.

Refinery crude oil consumption figures are in fair agreement with Bureau of Mines figures on runs-to-stills which totalled 1,183,440,000 bbls. in 1937 and 1,237,840,000 bbl. in 1939. However, the 1937 figure is less, the 1939 figure more than Bureau of Mines figures, so that the per cent gains are 7.7% by the Bureau of Census and 4.6% by Bureau of Mines figures. The two-year gain in refinery consumption of crude, 89,000,000 bbls., compares with 54,400,000 bbls. gain in crude runs to stills.

*Basis 50° Baume. †As reported, no strength stated.

New Wax-Making Process Uses Fractional Fusion

Practical fusion is the term applied to a newly developed process for wax sweating recently announced. The wax products are said to assume sharp, definite fractions never before obtained. Time for treating a batch of wax is half the usual time, it is said, as the result of close control of the heat flow, together with uniformity of application.

The equipment consists of an evaporative cooler, steam heating unit, circulating fan, distributing ducts in the room, and pipe coils with water pump in the pans. The wax mass is cooled under close control, each individual constituent freezing separately as cooling proceeds, until pans contain total solids, the non-wax-like oils having drained off during the process. Closely controlled heating then takes place under time-temperature control until all waxes up to the highest melting point are gone from the pans.

Furnace Deterioration Reduced by Water Spray

Undue deterioration of a furnace for producing flue gas under superatmospheric pressures by the action of extremely high temperatures in the vicinity of the combustion zone is prevented, according to Pat. No. 2,218,281, issued to Shell Development Co., by injecting, instead of steam or flue gases, a finely divided spray of water from a point within or near the mouth of the burner into the fuel-air mixture, into the space back of the flame.

The advantages of this method of cooling furnace linings over those employing steam or recirculating flue gases include greater efficiency which results in considerable saving of repair costs and cheaper operation, it is pointed out. The flue gases also remain clean and free from soot and other impurities which are apt to lessen the usefulness of the flue gases, particularly when applied for regeneration of catalysts.

The method is described as adaptable also to processes where hydrocarbons are cracked by direct contact with hot combustion gases in a pressure furnace.

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MODERN PYROLYTIC CRACKING PRODUCES QUALITY PRODUCTS WITH LOW PROCESSING COSTS

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Key to Recycling Efficiency Is Residue Gas Composition

IN THE design of plants for the recovery of distillate from high-pressure natural gas, the composition of the residue gas, rather than the amount of liquid condensed, is the key to extraction efficiency, it is shown by S. E. Buckley and J. H. Lightfoot, of Humble Oil & Refining Co., in a discussion of the effects of pressure and temperature on condensation of distillate from natural gas. The results of the operation of a portable separator plant for recovery of distillate as well as a description of the construction and operation of the experimental equipment are given in Technical Publication No. 1269 of the American Institute of Mining and Metallurgical Engineers.

Both optimum temperatures and pressures were determined on a typical gas-distillate well producing from approximately 10,000 ft. Most gas-distillate systems are probably characterized by low critical temperatures and pressures, from which it may be expected that most of them will exhibit optimum separation temperatures at certain pressures and optimum separation pressures at all temperatures normally encountered, the results indicated.

Discussing the importance of the composition of the residue gas, the content of pentanes and heavier hydrocarbons is of particular importance, it is reported.

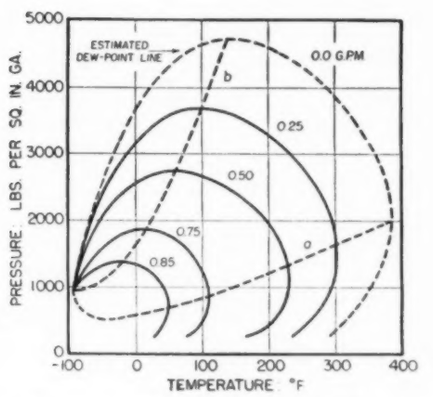
The accompanying phase diagram showing the combined effects of pressure and temperature on yield of pentanes and heavier hydrocarbons has as its most important feature the fact that, because of low critical temperature and pressure, almost the entire two-phase region is enclosed within a dew-point curve. Accordingly, it was pointed out, at any temperature above the molal average critical temperature of the mixture, —93° F., isothermal increase of the pressure from atmospheric will increase the condensation of pentanes and heavier up to some maximum value, and continued pressure increase will lead to complete disappearance of the liquid. This phenomenon has been observed so frequently as to be accepted as characteristic of all gas-distillate systems.

Equally clear from the diagram, however, is the fact that along any isobar above the critical pressure, 935 p. s. i., decreasing the temperature from a high value will also increase the amount condensed of pentanes plus until it reaches a maximum, after which continued temperature reduction will result in decreased condensation and finally complete disappearance of the liquid phase. This latter phenomenon may or may not be characteristic of all gas-distillate systems, the paper points out, although it is believed characteristic of many, particularly of those with low distillate content.

Optimum Conditions Graphed

The loci of the optimum pressure are indicated by the dotted line labeled *a* and the loci of the optimum temperature by the dotted line labeled *b*. Since these lines terminate at the critical point, their positions will be different for different mixtures. It is considered probable that within the range of compositions ordinarily encountered in gas-distillate mixtures, the richer the gas the higher will be the critical temperature and pressure and the higher the optimum pressure for a given temperature. The optimum temperature may be either higher or lower or may disappear depending upon the exact position of the critical point.

The development of numerous pools which yield products consisting predominantly of natural gas accompanied by high-gravity water-white or slightly straw-colored liquid has resulted from deep drilling, the authors explain. Yields of this "condensate" or "distillate" vary from traces to over 100 bbls. per million cu. ft. of gas.



Phase diagram showing combined effects of pressure and temperature on yield of pentanes and heavier hydrocarbons

It is now generally known that in the presence of natural gas the solubility in the gas phase of the heavier and normally liquid hydrocarbons increases rapidly with increasing pressure above 500 to 1000 p. s. i. Thus, at pressures of 2500 p. s. i. or higher a gas may contain appreciable quantities of hydrocarbons with normal boiling points as high as 600° F., which can be condensed from the gas phase by the reduction of their solubility therein attending pressure reduction.

The fact that there are temperatures of maximum liquid condensation at pressures of 1000 p. s. i. and higher is considered the most striking feature of curves showing the volume of liquid condensed as affected by temperature and pressure. Below these optimum temperatures the amount of condensate decreases rapidly and finally vanishes with further temperature reduction, the material remaining entirely in the vapor phase at low enough temperatures.

While this phenomenon was expected and had been observed with this experimental unit in other fields, the authors found no other reported observation of it. Its existence was believed to have been overlooked because of a tendency to interpret the behavior of gas-distillate systems in terms of the phase diagrams of mixtures having higher critical temperatures.

A major part of the investigation which the authors describe in part was concerned with developing correlations that would permit the use of a limited amount of experimental and analytical data on any particular system to calculate the complete phase behavior. They obtained quantitative information on the limitations attending recovery of distillate from natural gas by the control of temperature and pressure of separation in different fields using with their portable plant methods developed some years ago for a pilot plant.

Knock of Pure Hydrocarbons Varies Widely, Tests Show

THE engine behavior of the pure synthetic hydrocarbons supplied by a special laboratory at Ohio State University to the General Motors Corp. for engine tests, as provided by the American Petroleum Institute Hydrocarbon Research Project, has as its most conspicuous characteristic a very wide range in knocking characteristics, according to a recent Universal Oil Products Co. interpretation* of the second annual report of the Engine Combustion Study Group. The data covered 23 hydrocarbons at the time of the report, Sept. 1, 1940.

Twenty tests were made, 8 in the standard ASTM-CFR engine and the rest in the General Motors' variable-compression engine. Pure hydrocarbons were tested, as well as with various amounts of tetraethyl lead added. The critical compression ratios were taken at speeds of 600 and 2000 rpm., at jacket temperatures of 212° F. and 350° F. and at air temperatures of 100° F. and 150° F. No supercharged tests had yet been run. All of the compounds examined had lower critical compression ratios at 350° F. jacket temperature than at 212° F., at both speeds.

The effect of changing speed at constant jacket temperature produced results for which no general rules appeared obvious. The effect was very large for some compounds, irrespective of chemical class, and not consistently greater or less for one jacket temperature than another. The paraffins and naphthenes usually knocked less at higher speeds while the aromatic hydrocarbons and the one olefin knocked more at high speeds. However, one paraffin, 2, 2, 3-trimethylbutane, behaved like an aromatic hydrocarbon in this respect.

For the methylheptane and dimethylhexane series the effect of the change in engine conditions was qualitatively much the same for both series of compounds considered individually. For the cyclohexane series the effect of speed was different in magnitude from that for both methyl and ethylcyclohexane. The differences between methlcyclopentane and methycyclohexane were greatly affected by conditions under which the comparison was made and the former seemed more sensitive to speed. *o*-Xylene was especially sensitive to both speed and temperature.

Differences in Hydrocarbons

There was a consistent and fairly regular increase in antiknock quality with increased branched-chair character of the octanes. The conventional structural formula for organic chemistry was used because this seemed to be the simplest and most direct thing to correlate. In one figure in which the number of methyl groups in the molecule was used as an index, a great increase in octane number was shown when the molecule became more branched. In the methylheptane series, moving the methyl group towards the center of the molecule resulted in a quite consistent and progressive increase in the critical compression ratio. In the dimethylhexane series, moving the methyl groups closer together made for a progressive increase in compression ratio under all engine conditions.

The introduction of a methyl group into cyclohexane and subsequently changing it to an ethyl group made a progressive and large decrease in the critical compression ratio. A similar relation for the cyclopentane series was indicated by the difference in critical compression ratio of methylcyclopentane and of *n*-propylcyclopentane. Increasing the number of carbon atoms in the ring, as for example the difference between methylcyclopentane and methylcyclohexane, resulted in a great decrease in the critical compression ratio.

The three xylenes and ethylbenzene showed high critical compression ratios. There was usually little difference between the *meta*- and *para*-isomers, yet the *ortho*-isomer was consistently much lower, how much depending on engine conditions.

Effect of Tetraethyl Lead

The effect of 3.0 cc. of tetraethyl lead per gallon was to increase the permissible compression ratio between one-half and four compression ratios. In the paraffin series lead seemed to be more effective in compounds of higher antiknock value. The naphthenes showed the same general tendency. Lead in di-isobutylene was relatively low in effectiveness.

In terms of octane number lead was less effective in the higher-octane fuels but this was accounted for by the peculiarities of the octane-number scale. The unit of one octane number does not represent the same difference in knocking tendency on different parts of the scale. One octane number at the upper end of the scale represents a much greater change in knocking tendency than one unit at the lower end of the scale. The effectiveness of lead in any one hydrocarbon changed greatly with changes in speed and jacket temperature.

A preponderance of negative sensitivities was evident among the branched-chain paraffins. Fuel sensitivity was defined as the difference between the CFR Research octane number and the ASTM octane number of a given fuel. It is a purely relative term used to express the combined effect of changes in engine speed, mixture ratio, and ignition timing on knocking tendency relative to the effect of the same changes in engine conditions on the arbitrary reference standards, *n*-heptane and iso-octane. There was no consistent relation between sensitivity and octane number although there was an indication of a relation between sensitivity and the position of the side chain.

The final result was that whereas at 600 rpm. and low temperature 2, 5-dimethylhexane could safely be operated at a compression ratio about half a ratio higher than 3-ethylhexane, at 200 rpm., with a high operating temperature these two hydrocarbons knocked about alike. The effect of changing speed and operating temperatures on knock within the range investigated could be fully compensated for by change of compression ratio equivalent to from 1.5 to 2.0.

There was no effect of lead concentration on sensitivity, although in cyclohexane sensitivity increased progressively and in ethylcyclohexane sensitivity decreased progressively with increasing lead content.

*Library Bulletin of Abstracts, Dec. 18, 1940.

W. G. Lovell, assistant head of the Organic Chemistry Department, Research Division, General Motors Corp., prepared the second annual report of the A. P. I. Engine Combustion Study Group. He is author of numerous papers dealing with researches on many subjects related to engine and fuel and collaborated with T. A. Boyd on a paper for the last annual meeting of the A. P. I. entitled "Trends in Automotive Design Match Evolution in Fuels"

Thermal Insulation Problems Make Selection Complex

THE factors to be considered in the selection of thermal insulation for industrial applications have been analyzed by S. V. Saginor*, Davey Compressor Co., Kent, Ohio, and summarized in a list of the basic data. Selection of insulants now involves consideration of many factors because of the increasing variety of materials available and the more severe demands made upon them. In making an analysis of the proper type and thickness of insulation to be used, Mr. Saginor found the following basic data generally necessary.

1. For what main purpose or purposes is insulation to be provided?

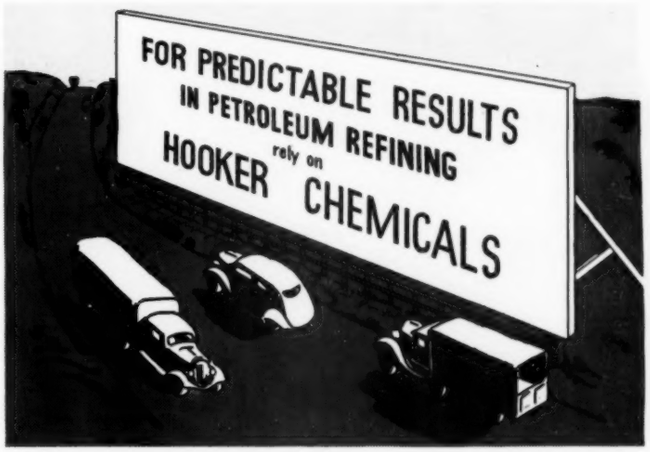
   Medium and High Temperature
   - (a) To conserve fuel
   - (b) To protect operators against burning or discomfort
   - (c) To eliminate fire hazard (if close to a flammable structure)
   - (d) To eliminate possibility of flashing in nearby processes
   - (e) To maintain close control of temperature in process
   - (f) To secure maximum capacity of equipment

   Low Temperature Piping and Equipment
   - (a) To lower refrigeration load
   - (b) To prevent dripping
   - (c) To eliminate "sun effect" (if equipment is outside and close temperature control is required)
   - (d) To maintain close control of temperature in process
   - (e) To secure maximum capacity of equipment.

2. Temperature
   - (a) Operating temperature
   - (b) Maximum and minimum temperatures
   - (c) How often is equipment to be brought up to maximum or down to minimum temperature?
   - (d) For what periods of time are maximum and minimum temperatures held?
   - (e) Is temperature same throughout equipment?
   - (f) Is operation intermittent? To what extent?
3. Atmospheric conditions in area considered
   - (a) Psychrometric analysis
   - (b) Maximum periods of high humidity and high dry bulb
   - (c) Maximum periods of low atmospheric temperature
   - (d) Corrosive elements
4. Value of heat or refrigeration
5. Estimated life of equipment or piping
6. How often will process require removal of all or part of insulation?
7. Will equipment be subjected to vibration or rough handling?
8. Is there any possibility of chemical overflow and to what extent?
9. Will equipment or piping be exposed to the weather?
10. If equipment or piping is located inside, will installation be made in area subjected to high humidity condition either normal or artificially maintained?
11. What clearance will be allowed for insulation?
12. What clearance will be allowed for application of insulant?

In the final selection of the insulant, after operating and economic factors have been given due consideration, individual characteristics of the various materials should be considered. It should be recognized however, that constant

*Chemical & Metallurgical Engineering, Jan., 1941, p. 82-86.



• In petroleum refining, chemical reactions can produce predictable results only when the reagents used do not vary. In manufacturing Caustic Soda and other chemicals for the petroleum industry, HOOKER has perfected methods of research, production and control that definitely insure standards of uniformity thought commercially impossible until recently.

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An indication of the volume of insulating materials used in petroleum refining is this fractionating column with its accessory equipment and piping used in solvent refining

progress is being made in this field and as new materials are developed a careful analysis of their characteristics should be made. In addition to price, sizes, thicknesses and packages available, additional data are necessary for proper comparison and Mr. Saginor has found the following tabulation of some assistance in securing these data.

1. Kind of service recommended by manufacturer
2. Approximate composition
3. Chemical reaction on metal surfaces (steel, aluminum, copper and alloys)
4. Variation in efficiency and shape over periods of time at maximum and minimum constant temperature
5. Susceptibility to decomposition or deterioration from moisture, fumes or at maximum or minimum temperatures for which the material is recommended
6. Effect of rapid temperature changes.
7. Conductivity curve at mean temperatures through recommended temperature range.
8. Specific heat
9. Transverse strength
10. Compressive strength
11. Abrasion loss per "Navy Test Method"
12. Density (as received and installed)
13. Compressibility
14. Resistance to vibration
15. Shrinkage, per cent of volume
16. Effect of rapid temperature change
17. Fire resistance
18. Waterproofness (inherent resistance to beating rain)
19. Permeability (resistance to infiltration of moisture and moisture vapor migration if used for low temperature work)
20. Recommended method of installation
21. Adaptability to weatherproofing and cement finishes
22. Salvage value

If Insulant is Cement Type

23. Covering capacity, wet and dry
24. Shrinkage by platen test
25. Adhesiveness (resistance to pull)
26. Water mix for best application
27. Will insulant loosen with rapid temperature change?

Flammability of insulants and finishes should be determined, particularly where used in high fire hazard zones, as certain processes present the possibility of auto-ignition where leakage occurs. In these cases asphalt drip from weatherproofing could soon carry a fire throughout a plant. The ignition point of canvas and other wrappings should also be known owing to possibility of auto-ignition by the escape of heat through end or longitudinal joints of insulation, indicating here the necessity in many instances for broken joints or double layers.

The importance of structural strength is emphasized and in many applications is considered the deciding factor. Applied thickness and weight of insulants also are important enough to justify investigation, it was concluded, as well as reaction to various metals, and possible settling.

Asphalt Heads Materials For Military Roads

Roads used in the combat areas of any war on this continent must be repaired and maintained principally through the use of bituminous materials, it is the conviction of Col. W. N. Carey, who is chairman of the Committee on Military Road Construction and Maintenance, of the American Society of Civil Engineers. Col. Carey presented his personal views on military road maintenance at the recent National Asphalt Conference of The Asphalt Institute in Dallas.

"Our present theory of road work in 'forward areas' (i. e. areas assigned to field armies) is based on the doctrine of reconstruction, repair and maintenance of existing roads rather than on the construction of new roads. In the bituminous road materials of this country and of this continent, is found the agency through which nearly every war task of road improvement, repair and maintenance can be performed with the least effort and the greatest probability of success," he said. "As I see the problem, we must be prepared to use bituminous repair materials right up to the front . . . . We must be organized and equipped to manufacture and lay cold bituminous mixtures in small and large quantities and to get the most out of any road oil, cut back, tar, emulsion or any other bituminous material easiest available to any specific area," he continued.

The use of asphalt for emergency construction or repair of airports and landing fields was also recommended as the best material and Col. Carey said he could not see how that job can be done in any other way.

He concluded that the Army is not so certain of desirability of employing bituminous materials although it is definitely approaching this conclusion. He added that "if we are in agreement as to the adaptability and desirability of bituminous materials for road use in forward areas in war, then the sooner the men of the bituminous industry and highway engineers in general can demonstrate that fact to Army authorities, the sooner engineer road training along the right lines can commence. The time for such demonstration is now, while this subject is under consideration by the Army. After decision has been reached as to road engineer organization, equipment and materials, a new Engineer Field Manual printed and new Tables of Engineer Organization circulated, it may be too late for demonstrations."

Col. Carey listed recommendations for road equipment for use by 6 special road battalions. Leading the list are 3 asphalt plants of 10-15 tons per hour capacity, semi-trailer type, for mixing bituminous cold patch material. A continuous mix type with provision for drying aggregate in oil-fired dryers was recommended.